

US Army Corps of Engineers

Fort Worth District



FOUNDATION REPORT

AD-A229 436



# **COMPLETION OF**

EMBANKMENT, SPILLWAY AND OUTLET WORKS RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS

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## CORPS OF ENGINEERS FORT WORTH DISTRICT, TEXAS



FOUNDATION REPORT
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RAY ROBERTS LAKE

Statement "A" per telecon Caroline Solomon. U.S. Army Engineering District, Fort Worth/CESWF-IM-C. P. O. Box 17300. Fort Worth, TX 76102-0300.

VHG 11/26/90

AUGUST 1990

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#### RAY ROBERTS LAKE FOUNDATION REPORT

#### 1. INTRODUCTION.

- a. Project Location and Description. Ray Roberts Dam and Lake project is situated in northern Denton, south-central Cooke and western Grayson Counties. The Dam is at river mile 60.0 on Elm Fork of the Trinity River, approximately 30 river miles north of Lewisville Dam. The location of the project is shown on Plate 1. The principal features of the project include (1) a rolled earthfill embankment approximately 14,980 feet long; (2) a limited service spillway consisting of an uncontrolled trapezoidal broad-crested weir; the spillway crest length is 100 feet; and (3) the outlet works, consisting of an excavated approach channel, intake structure and service bridge, a 708-foot long by 13-foot diameter cut and cover conduit, stilling basin and excavated discharge channel (see Plate 2). For the future addition of hy Jropower, a separate steel-lined concrete 5-foot diameter low flow conduit was constructed beneath the main flood control conduit.
- b. Construction Authority. Congressional authority for construction of Aubrey Lake (now Ray Roberts Lake) is contained in the Public Works Rivers and Harbor Act approved 27 October 1965 (Public Law 89-298) in accordance with the plan of improvement as outlined in House Document No. 276 (89th Congress, 1st Session).
- c. Purpose of the Report. This report was prepared in accordance with requirements as set forth by the Office, Chief of Engineers in ER 1110-1-1801.

The purpose of this report is to provide a complete record of foundation conditions encountered during construction. Information contained in this report will be valuable when evaluating (1) necessary remedial action required to prevent or repair any problems resulting from foundation deficiencies; (2) contractor claims related to foundation conditions or alleged change of condition; and (3) planning and design of future comparable construction projects.

A copy of this report should be included in the permanent records maintained at the project office.

d. Project History. Four dam site locations were studied prior to final site selection. Site No. 1, the project document site, is at river mile 60.0. Sites 2, 3, and 4 are at river miles 55.9, 51.2, and 64.0, respectively. Three holes were drilled at Site 2 in 1970. No subsurface explorations were done at Sites 3 and 4.

Site No. 4, located upstream of the confluence of the Elm Fork and Isle du Bois Creek would require two embankments and in effect form two lakes. Site No. 4 would also require two outlet facilities or an equalizer channel. This was the uppermost site considered. Sites downstream from Site 3 would be in the flood pool of Lewisville Lake and would require a major railroad relocation.

Based on studies that included an appraisal of the physical, historic, economic, and social impacts at each site, and the results from a public meeting held in April 1971, Site No. 1 was selected as the recommended site. By Public Law 96-384, dated 6 October 1980, the

project name was officially changed from Aubrey Lake to Ray Roberts Lake.

Seven locations, designated A through G, for the spillway were investigated. Cost estimates were made for gated, broadcrested, and uncontrolled ogee spillways. Consideration was also given to a perched spillway with the crest elevation at 5 feet, and at 10 feet above the top of the flood control pool.

Site A was used for the gated spillway estimate for site selection. It was in the steep slope of the east abutment and proved to be undesirable from the standpoint of stability and excessive excavation. Site B, the recommended site, was used for the uncontrolled spillway estimate for site selection, and for various other plans. Site B proved to be the most economical spillway location regardless of type of spillway. Site E at Culp Branch on the west abutment was investigated, but spillways here were too costly because of excessive channel excavation and downstream land requirements. Sites C, D, F, and G were eliminated by inspection because of excessive excavation and additional land requirements.

Studies showed that a gated spillway had a higher first cost than the uncontrolled spillways. Annual operating and maintenance costs for a gated spillway would also be appreciably greater. Several studies were made of various plans with both broadcrested and ogee uncontrolled spillways, in order to optimize size and type of structure.

Studies were made for uncontrolled spillways with widths varying

from 100 feet to 1,000 feet. These studies indicated that the most economical project would be one with the narrowest spillway and highest embankment. A width of 100 feet was judged to be the practical minimum and was, therefore, selected for the recommended plan.

e. Contractors Supervision and Quality Control Organization. The embankment, spillway, and outlet works for Ray Roberts Lake were constructed under one contract. Pertinent data related to the contract are listed below:

Contractor: Phillips and Jordan, Inc., Knoxville, TN

Contract No.: DACW63-82-C-0083

Contractor's Bid: \$48,657,799

Notice to Proceed: 31 May 1982

Completion Date: 9 October 1986

Total Payment Including Modifications: \$51,491,731.27

- (1) Quality Control. The quality control organization was furnished and compensated by the contractor.
- (2) Contract Supervision. Construction was under the immediate supervision of the District Engineer, U.S. Army Engineer District, Fort Worth, Texas. The contracting officer's representative for administration of the contract was Mr. Webb Boland. The following personnel participated in administering the contract: Mr. Mark Gibson, outlet works construction, and Mr. David Bowie, embankment and spillway construction.

#### 2. FOUNDATION EXPLORATIONS.

a. Investigations Prior to Construction. Dam Site No. 1 was first explored in 1939. Eight combination auger and core borings numbered C-1 through C-8 were drilled near the present alignment. The borings ranged from 67 to 217 feet in depth. In December 1960, three additional combination auger and core holes, numbered 9 through 11, were drilled on the right abutment slope, ranging in total depth from 30.6 to 106 feet. There are no testing records on either the overburden materials or the rock cores and the borings were not pressure tested. Boring locations are shown on Plates 4 through 7. Logs of boring are shown on Plates 8 through 39.

Twenty-two additional holes were drilled in 1971 and 1972 during the General Design Memo Study Phase. These holes were numbered 12 through 27, and B, C, D, E, F, J, and K. The following table shows the location, total footage, and purpose for these holes.

Location	:	Number Drilled	:	Total Footage	 : :	Purpore	
Right (West) Abutme	ent	6		292.0		Embankment Foundation	
Left (East) Abutme	nt	1		51.0		11 11	
Valley Section		4		296.4		11 11	
Spillway		7		476.3		Spillway Location & Foundation	
Right Abutment Out1	.et					Intake & Stilling Basi	n
Works		2		95.2		Foundation	
*Left Abutment Out1	.et					Intake & Stilling Bas	in
Works		2		105.8		Foundation	

<sup>\*</sup>Alternate location considered for outlet works.

In late 1972 and 1973, 37 additional holes were drilled. These holes were numbered 28 through 77. Holes 41 through 49 were 3-inch

Shelby tube holes, drilled along the axis of the uncontrolled spillway. Holes 3S-52 through 3S-57 were 3-inch shelby tube holes drilled along the centerline of the outlet works discharge channel. The other 22 holes were drilled in the embankment foundation.

In 1975 and 1976, holes 83 through 99 were drilled in the outlet works area, with the exception of hole 3F-86, which was drilled on the left abutment.

In late 1975, nine 8A6C holes, designated 301 through 309, were drilled at Site E for spillway site selection. This site was was not selected.

In October 1980, holes 310 through 316 were drilled, and in April 1981, holes 358 through 366 were drilled, all in the outlet works area.

One calyx hole (42-inch auger) was drilled in March 1975, to a depth of 46.5 feet to investigate soft clay seams in the embankment foundation. The hole was located at Station 120+70, 130 feet upstream.

A total of 113 foundation borings were drilled at the project.

b. Investigations During Construction. No problems requiring additional subsurface explorations were encountered during construction.

#### 3. GEOLOGY.

a. Physiography. Ray Roberts Dam and Reservoir lie within the Gulf Coastal Plain physiographic province. The coastal plain of Texas is characterized by a broad rolling landform extending from the outcrop of the basal Cretaceous sands to the northwest to the Gulf of Mexico on

the southeast. It has developed upon a sequence of sedimentary rock units which dip gently southeastward, resulting in successively younger formations cropping out Gulfward. The outcrop of each formation or group in the coastal plain of Texas has distinctive soil, vegetation, erosion characteristics which are basis for the physiographic subdivision. Ray Roberts Dam and Reservoir lie within two such subdivisions; the Grand Prairie and the Eastern Cross Timbers. Damsite Geology is shown on Plate 3. The Grand Prairie, a subdivision which has developed on the outcrop of the Washita Group of Lower Cretaceous age, occurs generally west of the Elm Fork of the Trinity River. It is characterized by a rolling to hilly topography supported by limestone, marl, clay shale, and sandy shale. Typically, it is a grassy country, the uplands being given largely to grazing, the valleys being important agriculturally. Situated east of the Elm Fork, the Eastern Cross Timbers has developed on the outcrop of the Woodbine Formation of Upper Cretaceous geologic age. The Eastern Cross Timbers is characterized by a rolling to moderately rugged topography which supports a prolific growth of post oak trees.

### b. Site Geology.

(1) Overburden. Overburden on the abutments consisted of predominantly residual clay and clayey materials generally ranging from 25 to 35 feet in thickness. The embankment is founded on these materials. In the spillway area, 2 to 11 feet of clay and silty clay with scattered gravel were removed and this structure is founded on

weathered clay shale. Overburden materials in the floodplain consist of 35 to 45 feet of alluvial clays, silts, sands, and gravels, comprising the floodplain embankment foundation. In the outlet works area about 20 to 30 feet of alluvial clays, silts, sands, and gravels were removed and the outlet works is founded in unweathered clay shale of the Pawpaw Formation.

- (2) Structure. Subsurface investigations and subsequent foundation mapping during construction of the dam, outlet works and spillway have not revealed faulting or any other structural anomalies that would adversely affect the foundation of these structures. Correlation of marker beds encountered in the foundation borings show that the strata strike northeast and dip about 60 feet per mile to the southeast. Locally, minor undulations occur within the strata.
- (3) Stratigraphy. Primary materials at the site from oldest to youngest are Pawpaw shale, Main Street limestone and Grayson marl of Lower Cretaceous age, and the Woodbine Formation of Upper Cretaceous age. The broad Elm Fork River valley is partially filled with Recent floodplain alluvium, while the uplands bordering the valley are often covered with Quaternary age terrace deposits.
- a. Pawpaw Shale. Except for some isolated remnants of Main Street limestone, the Pawpaw shale comprises the primary strata beneath the embankment between station 0+00 to the base of the left abutment, the outlet works, and spillway (see Plates 44 through 48). The formation is composed of a soft to moderately hard, gray to black,

medium bedded clay shale, often sandy with sand laminations and lenses up to several inches thick. Thin, limy, fossiliferous zones occur throughout the formation.

- b. Main Street Limestone. The Main Street limestone conformably overlies the Pawpaw shale. A full section is present in the left abutment. Erosional remnants occur in the central part of the embankment foundation and on the right abutment slope above elevation 640. The limestone is about 12 feet thick, moderately hard to hard, gray, fossiliferous, massive at its base, and becomes shaly as it grades into the overlying Grayson marl.
- c. Grayson Marl. The Grayson marl occurs only in the left abutment at the dam site. It is represented by a soft to moderately hard, gray, highly calcareous, thick bedded, fossiliferous shale, that becomes increasingly marly at its base. Often a thin shally limestone bed caps the formation separating it from the unconformably overlying Woodbine Formation. The Grayson and Main Street Formations are usually mapped as one geologic unit. At the dam site, their combined thickness is about 30 feet.
- d. Woodbine Formation. The left abutment, above approximate elevation 565, is comprised of sediments belonging to the Woodbine Formation. Core borings made for the embankment reveal a fine-to-coarse-grained sand with scattered ironstone concretions and thin, poorly cemented sandstone seams to approximate elevation 600. In the basal portion of the Woodbine, a soft to moderately hard, gray to

brown, sandy clay shale predominates, although sand and sandstone can occur. Carbonaceous fragments are often noted. These inclusions, along with the generally noncalcareous nature of the shale, distinguish the material from the underlying Grayson Formation. The Woodbine exhibits gradational changes, both laterally and vertically, in its lithologic composition that make correlation between even closely spaced borings very difficult. The most detailed description of the Woodbine was developed after excavation of the inspection trench of the left abutment. Plate 58 is a geologic section of the plan of the inspection trench along the left abutment prior to placement of the fill.

(4) Weathering. Chemical weathering (oxidation and hydration) has affected the primary strata at the dam site to varying degrees. The shale and sandy shale of the Pawpaw Formation that comprise the primary strata for most of the embankment section have been only slightly altered. Staining (oxidation) is present to a maximum depth of about 14 feet below the top of primary strata that underlie the upland soils of the right abutment, while the Pawpaw shale beneath the alluvium in the valley section is fresh. In contrast, the sand, soft sandstone and shale of the Woodbine Formation that comprise the left abutment are deeply weathered. The relatively permeable sands and sandstones receptive to percolating waters are generally weathered throughout to the top of the first significant shale beds. Weathering in the snale occurs primarily as oxidation along joints and bedding

planes.

- (5) Ground Water. Water levels are shown on Plates 44 through 48. Significant quantities of ground water are found in the floodplain alluvium and in the basal sands and gravels of the low level terrace deposits. Lesser quantities occur in joints and fractures in the weathered section of the Pawpaw shale and in the basal portion of the Woodbine Formation near its contact with the underlying Grayson in the left abutment. Prior to impoundment, ground water in the floodplain alluvium occurred at depths of 20-25 feet. During excavation of the inspection trench in the left abutment, water seeps were encountered at the contacts of the more pervious sands and sandstones with the underlying clays (see Plate 58).
  - c. Engineering Characteristics of the Overburden Materials.
- (1) Outlet Works. Overburden in the outlet works area was investigated using auger, Denison and Shelby tube samplers. The materials consist of sandy clays (CL and CH) with zones of clayey sands (SC) and gravels (GC-GP). The gravelly zones generally overlay the primary materials. Overburden thickness varies from about 5 to 25 feet along the approach channel, from 8 to 20 feet along the conduit, and from 12 to 45 feet along the discharge channel. Classification and index testing were performed on jar samples taken from various depths in the overburden.
- (2) Embankment. The overburden materials in the embankment foundation consist of alluvial clays, sands, and gravel strata.

**.** 

Classification tests, Q, R, and S strength tests, and consolidation tests were performed on Denison barrel samples taken at varying depths in the clay. Classification and index tests were performed on jar samples taken from auger borings and Denison barrel samples obtained from the overburden in the floodplain. The following properties were used for overburden materials in the floodplain:

Moisture content 20% Dry density 107.5 pcf Type 0 Test tsf Degrees 0.8 3 Q R 0.1 14 S 26

(3) Weak Stratum. The following soil parameters were used for the weak, sandy clay stratum which is located in the foundation near the base of the overburden beneath the floodplain embankment.

Moisture content 23%

Dry density 102.0 pcf

Type Test	c tsf	0 <u>Degrees</u>	
Q	0.35 and 0.40	2.5	
R	0.1	14	
S	0	26	

The low, undrained shear strength of this weak stratum is the controlling factor in the stability of the floodplain embankment.

(4) Spillway. The broadcrested weir is founded in weathered shale. Overburden along the centerline of the spillway increases from 2 feet in the area of the weir to 7 feet in the approach channel and 4 to 6 feet in the discharge channel. The overburden consists of principally silty clay with some fine sand and locally scattered fine gravels.

## d. Engineering Characteristics of the Bedrock Materials.

(1) Outlet Works. The primary materials in the outlet works area were investigated using Denison, Shelby tube and core barrel samplers. Boring locations are shown on Plate . Primary foundation materials consist of unweathered clay shales of the Pawpaw Formation. The shales contain interbedded sandstone seams and beds that vary from a few inches to approximately 4 feet in thickness. From station 27+00 to 34+00, a near surface limestone layer was encountered which varied from about 2 to 7 feet in thickness. Laboratory testing was performed on selected samples of primary materials taken from borings along the centerline of the outlet works. Tests performed were classification, index grain size, unconfined compression and Q-triaxial compression tests. The approach channel structure, intake tower, and stilling basin was founded in unweathered shale for which the following parameters were used:

> Allowable bearing pressure 8.0 ksf Shear Strength, 0 20° Cohesion 0

- (2) Embankment. Laboratory strength tests conducted on samples of primary materials indicate that the shale stratum underlying the overburden through the floodplain has a low to moderately low strength, but its strength increases with depth. Although the strength of the shale is relatively low in the upper portion of the stratum, its strength is greater than that of the overburden; therefore, it is not the governing factor in the stability of the embankment.
- (3) Spillway. The spillway is founded on interbedded silty shale and soft sandstone of the Pawpaw Formation. The materials are adequate to support the light loads to be imposed.
- e. Unusual or Unanticipated Geologic Conditions Encountered During Construction. No unusual or unanticipated geologic conditions were encountered during construction.

### 4. EXCAVATION PROCEDURES

Excavation Grades. Foundation conditions encountered during excavation of the outlet works, inspection trench, cutoff trench, and emergency spillway were about the same as described in the subsurface data in the plans and specifications. The design slopes were achieved without any problems. The only deviation from designed grade lines was overexcavation in the primary materials. February In overexcavation occurred in the area adjacent to the outlet works conduit, between stations 28+90 and 29+80. The maximum depth of overexcavation was 2 feet. Contractor backfilled the overexcavation with concrete.

- b. Dewatering Provisions. No ground-water problems of a serious nature were experienced in the outlet works, inspection trench, cutoff trench, or spillway excavations. On occasion, heavy rains partially filled the excavations. Small seeps were present in all the excavations except the spillway and are noted on the drawings. Surface water and the small amount of ground-water seepage experienced were handled by pump and sump operations. See Figures 1 through 6. All concrete and impervious backfill placements were on foundations free of water.
- c. Overburden Excavation. Overburden materials excavated consisted of residual clay and other clayey materials on the abutments; alluvial clays, silts, sands, and gravels in the floodplain inspection trench and outlet works; and clay and sandy clay with scattered gravel in the spillway area. See Figures 7 through 12. Bulk excavation was done by Caterpillar scrapers. Finished grades were achieved with motor graders. Overburden materials considered suitable were used as random and semicompacted fill.
- d. Rock Excavation. All rock excavation was accomplished using rippers and scrapers. Much of the weathered shale was used in a manner similar to the overburden; as random or semicompacted fill. Excavation methods were also similar. After bulk excavations of weathered shale by caterpillar scrapers, final grade was accomplished using motor graders. Exposure of weathered or unweathered shale of the Pawpaw Formation was limited to 3 days. See Figures 13 through 20. When this limit was exceeded, the contractor was required to clean the exposed



Figure 1. Outlet Works excavation showing peripheral ditches controlling ground water.



Figure 2. Same as above

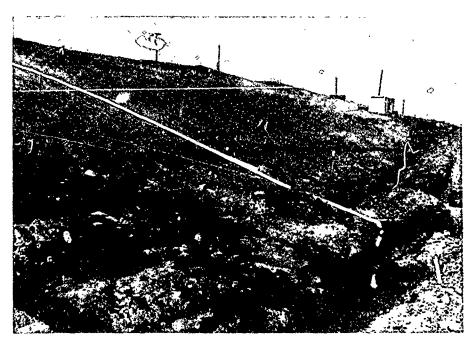


Figure 3. Outlet Works excavation showing peripheral ditches controlling ground water.

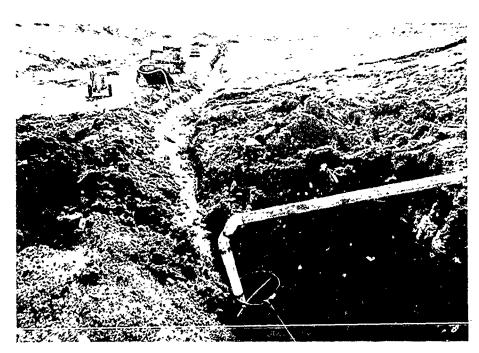


Figure 4. Same as above.



Figure 5. Outlet Works excavation showing peripheral ditches controlling ground water.



Figure 6. Same as above.

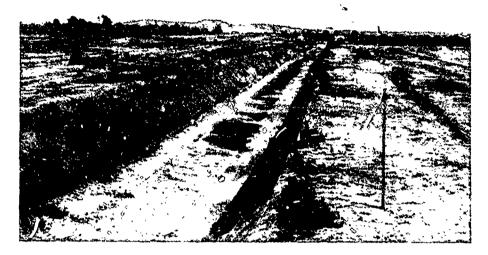


Figure 7. Right Abutment inspection trench looking east (Upstation)



Figure 8. Left Abutment looking east.



Figure 9. Downstream face of right abutment inspection trench approx. sta. 66+50 to 69+00, looking east (Upstation).

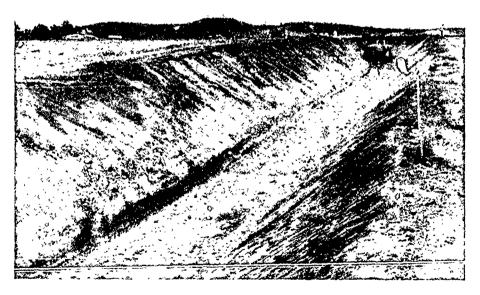


Figure 10. Upstream face of right abutment inspection trench Approx. sta. 66+50 to 69+00, looking east.

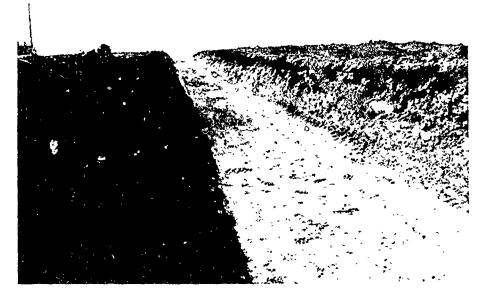


Figure 11. Right abutment inspection trench, looking west (downstream).

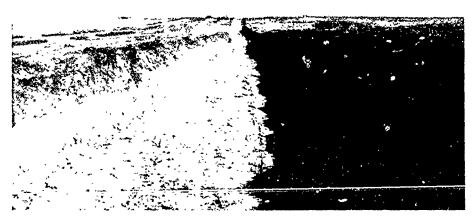


Figure 12. Same as above.

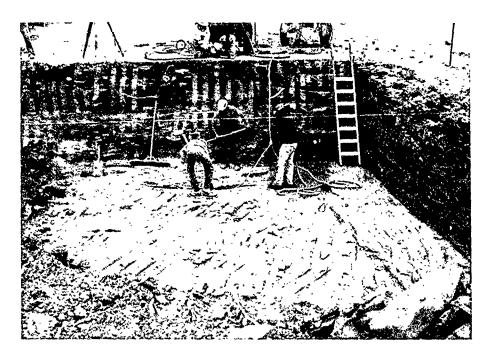


Figure 13. Intake Structure, hand cleaning shale foundation.



Figure 14. Intake Structure, placing re-bar for slab.



Figure 15. Looking Upstream from valve vault, showing fresh shale surface prior to placement of impervious material.



Figure 16. Foundation for approach slab.

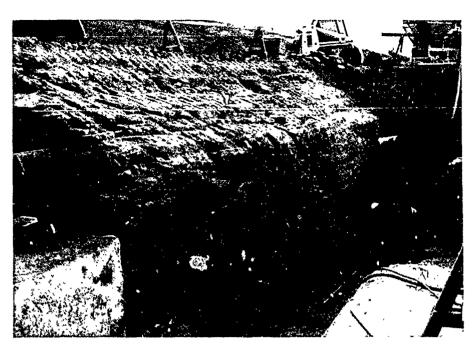


Figure 17. Excavation for intake for hydropower conduit at intake structure slab - looking downstream.

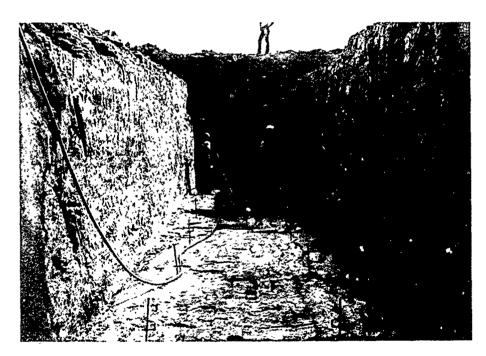


Figure 18. Hydropower conduit - placing gunite, Sta. 29+50-30+00.

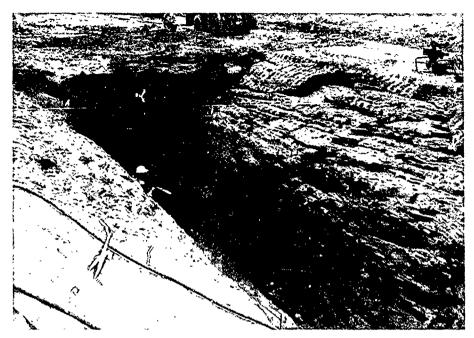


Figure 19. Hydropower conduit, looking downstream, Sta. 29+20.

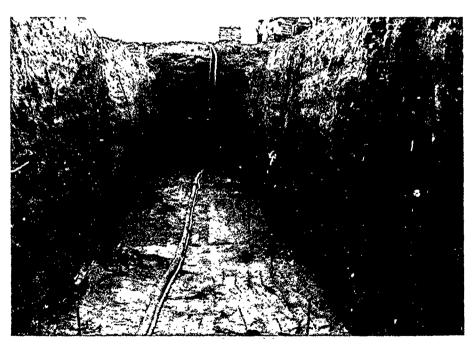


Figure 20. Hydropower conduit, looking downstream, Sta. 30+10.

face by jackhammer and/or air jetting before protective concrete was placed.

- e. Line Drilling, Presplitting, and Contour Blasting. No line drilling, presplitting, or contour blasting were performed during the course of construction.
- f. Foundation Preparation. Clay shale of the Pawpaw Formation forms the majority of the foundation in the outlet works excavation and in the excavation for the sill of the limited-use spillway. See Figures 21 through 29. Primary materials in general were not exposed in cutoff or inspection trench excavations. See Figures 30 and 31. The most predominant material exposed was clay, especially CH clays. Since the clay shale deteriorates upon exposure to air, usually very noticeable within about 3 days, protective sealant or lean concrete (Gunite) were specified for exposed shale surfaces. See Figures 34, 35, 36, 41, and 42.
- g. Gunite in Conduit Excavation Walls. Problems with Gunite (protective concrete) developed in November 1982 in the hydropower conduit section between Stations 26+63 and 30+85. Excavation of the trench was done between 10 November 1982 and 23 November 1982. Gunite was applied, as excavation progressed, on the floor and nearly vertical walls of the trench. Inspection on 24 November 1982 revealed numerous horizontal cracks, circular areas where Gunite has fallen off the wall, and evidence that voids existed behind the Gunite face. Inspection on 30 November 1982 revealed that deterioration of the Gunite had greatly

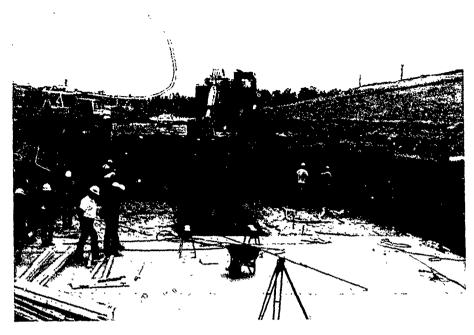


Figure 21. Excavation for hydropower conduit at intake structure slab.

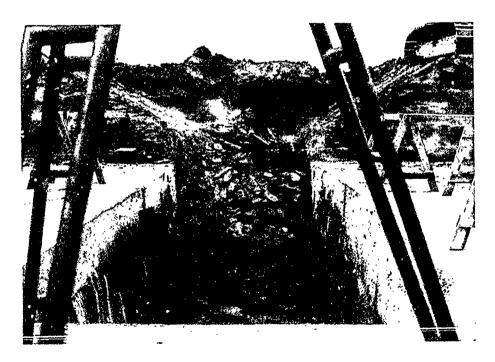


Figure 22. Same as above.

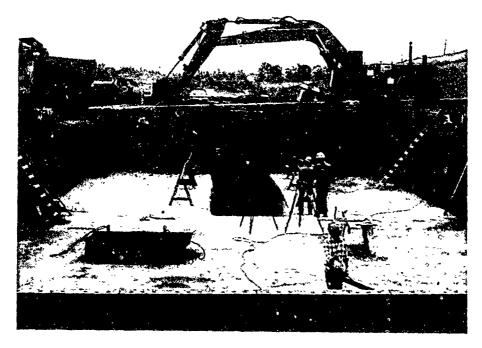


Figure 23. Excavation for hydropower conduit at intake structure slab.

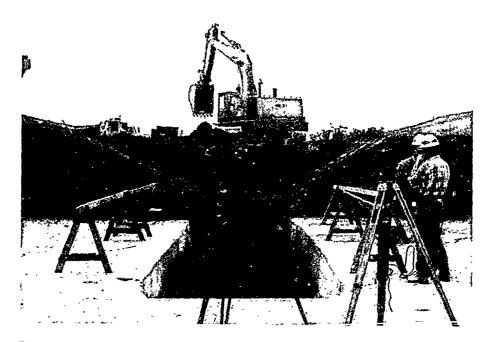


Figure 24. Same as above.

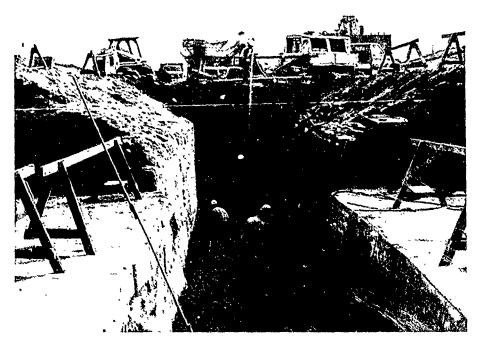


Figure 25. Excavation for hydropower conduit at intake structure slab.

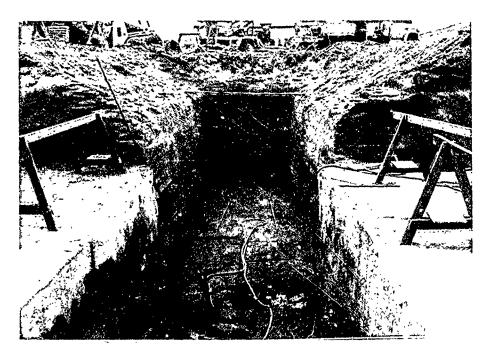


Figure 26. Same as above.

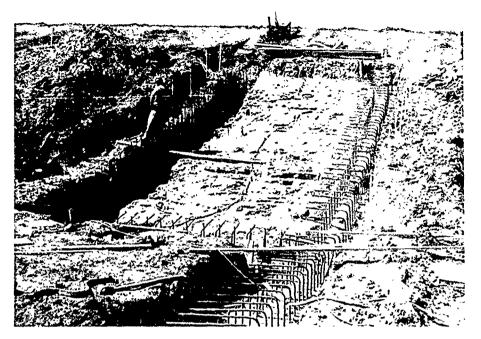


Figure 27. Construction of spillway sill.

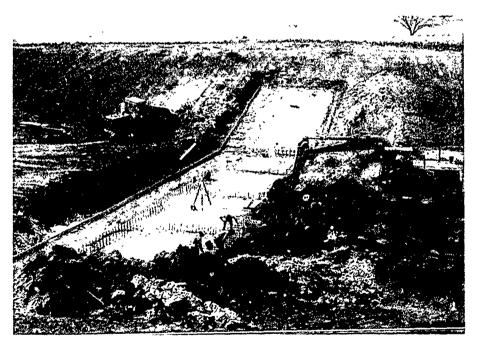


Figure 28. Same as above.



Figure. 29. Spillway - placing concrete footings.



Figure 30. Looking downstation along dam centerline at intersection of embankment centerline and outlet works centerline.

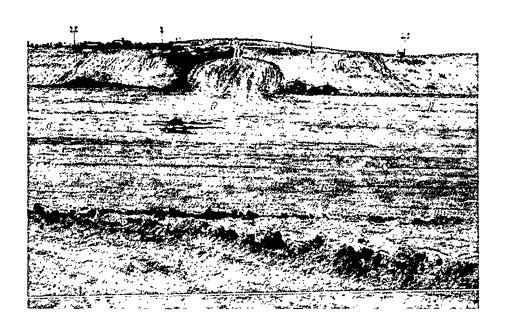


Figure 31. Later view of same area.

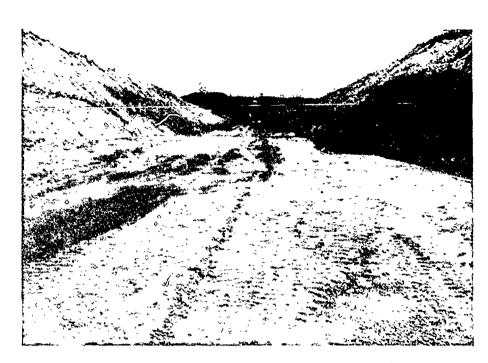


Figure 32. Inspection trench looking upstation (east).



Figure 33. Inspection trench looking upstation. Sta. 83+00 - 91+00.



Figure 34. Intake structure foundation - spraying aerospray.

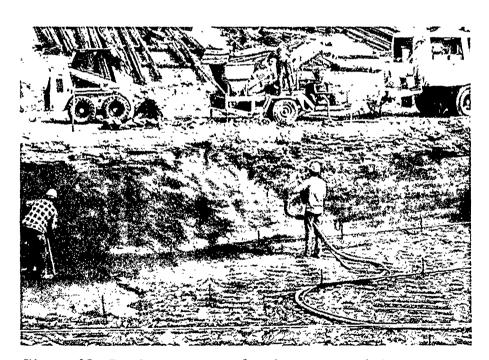


Figure 35. Intake structure foundation - applying gunite.

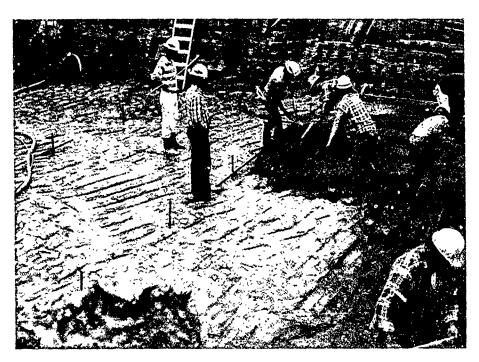


Figure 36. Intake structure foundation - placing protective concrete.



Figure 37. Forms for intake structure.



Figure 38. Outlet works, left side looking downstream at intake structure wing walls showing fresh shale surface.



Figure 39. Intake structure, left side looking upstream. Fresh shale surface prior to placement of impervious.

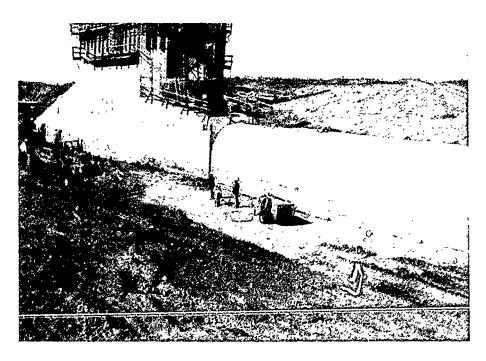


Figure 40. Same as above.

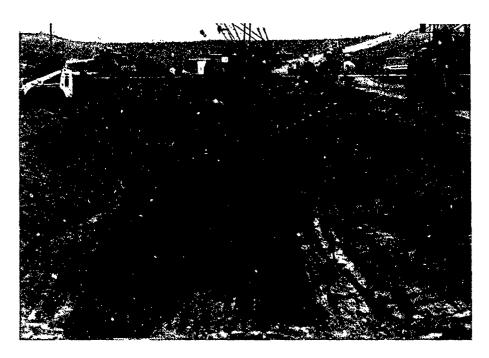


Figure 41. Hydropower conduit excavation showing gunite and aerospray application (looking upstream) Sta. 28+50 - 27+50.

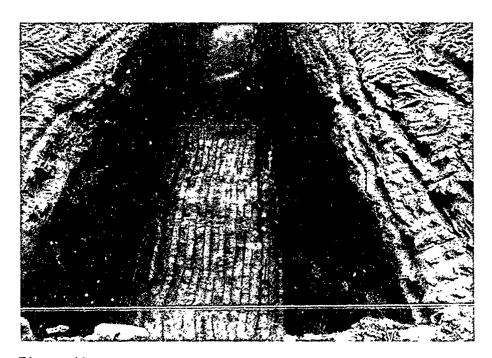


Figure 42. Same as above.

accelerated, apparently because of a heavy rain on 25-26 November 1982. See Figures 43 through 46. From Station 28+25 to 30+85 the Gunite was severely cracked and broken and an estimated 30-foot long section on the east wall of the trench had fallen. Most of the Gunite on both walls in this section appeared loose and ready to fall. Portions of the Gunite, though still in-place, had void space between the Gunite and the rock face. This space could provide a seepage path along the outside of the conduit connected directly to the reservoir pool. A contract modification was signed on 3 December 1982 which stated:

- (1) On remainder of penstock excavation (Station 30+85 to Station 34+07), delete pneumatic concrete from the IV: .09 H slopes, and spray these slopes with Aero-spray 70 as often as require; to prevent weathering of shale.
- (2) Between Stations 28+22 and 30+75 remove <u>all</u> pneumatic concrete which is drummy, cracked, or loose. Spray exposed shale with Aero-spray 70 as often as required to prevent weathering of shale.
- (3) All future penstock excavation (Station 30+85 to Station 34+07) and removal of existing pneumatic concrete (Station 28+22 to Station 30+75), will proceed at a rate to accommodate one placement at a time to minimize shale exposure.

The contractor agreed that no more than 3 days would pass between exposure of the clay shale and concrete encasement. On occasions when exposure was more than 3 days, deterioration, consisting of severe drying, cracking and checking, was often noted. Contractor was then

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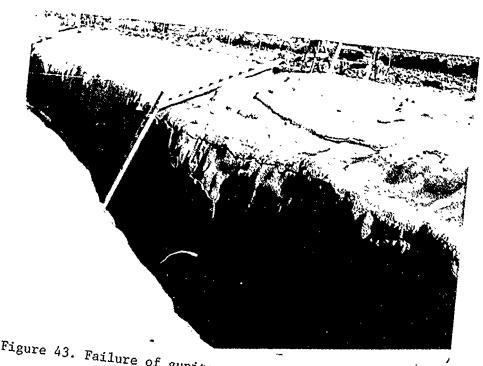


Figure 43. Failure of gunite on hydropower conduit excavation.



Figure 44. Same as above.

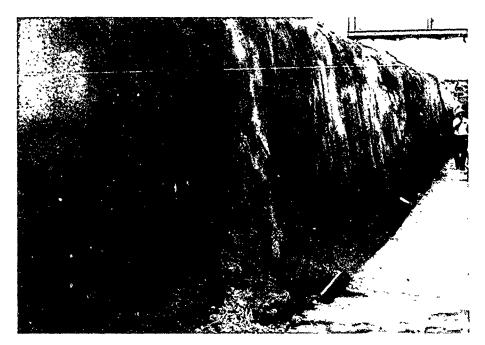


Figure 45. Failure of gunite on hydropower conduit excavation.

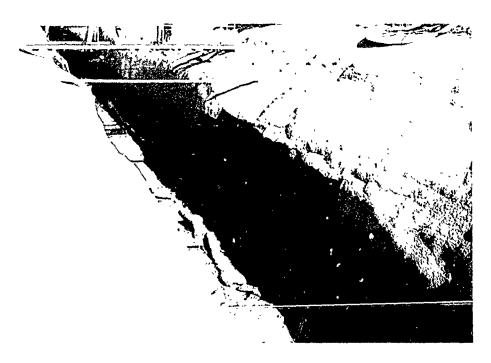


Figure 46. Same as above.

instructed to clean loose and drummy rock by jackhammer and to make final cleanup with compressed air before placement of concrete.

- h. Safety Protection Against Slides and Rock Falls. Slopes excavated to design grade were generally not steep enough to require special protection against slides and rock falls.
- 5. PILE DRIVING AND SPECIAL FOUNDATIONS. No special foundations, such as driven piles, caissons, or drilled piers were utilized.
- 6. TUNNELS, SHAFTS, AND UNDERGROUND STRUCTURES. The construction of this project did not include any tunnel shafts or underground structures.
- 7. FOUNDATION ANCHOR TEST. A foundation anchor test was performed 4 April 1983 at Station 34+93.5, 5 feet west of outlet works centerline. See Figures 47 through 50. The surface elevation was 531.3. The test was performed in the chute foundation area on a 12-foot anchor with test results shown on pages 19 and 20.

## 8. CHARACTER OF FOUNDATION.

a. General. The limited service spillway is founded in weathered clay shale of the Pawpaw Formation of Lower Cretaceous age. The outlet works conduit, chute, and stilling basin are founded on unweathered clay shale of the Pawpaw Formation. Except for the left abutment, the inspection trench was almost entirely in overburden with clays and silty clays predominating. The Woodbine Formation, the basal formation of the Upper Cretaceous, was exposed in the inspection trench in the left abutment. It consists of weathered reddish-brown sands, clays,

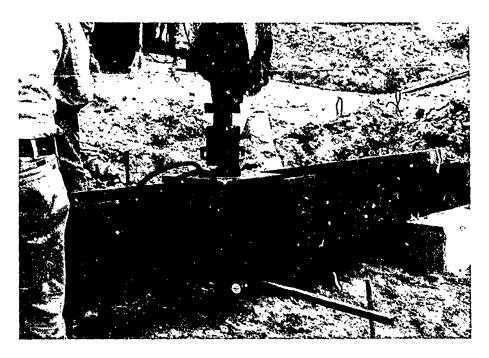


Figure 47. Pullout test. Stilling Basin.

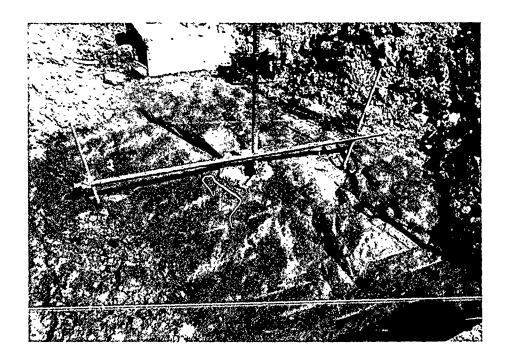


Figure 48. Same as above

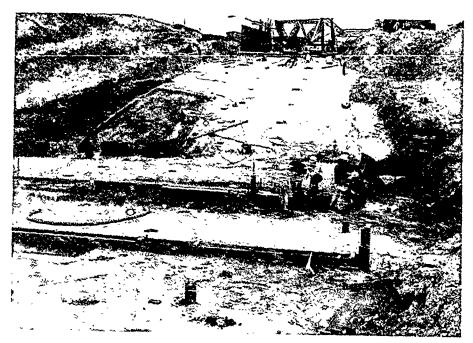


Figure 49. Pullout test. Stilling basin.



Figure 50. Same as above.

TEST NO. 1

Time	Load In Tons	<u>PSI</u>	Deflection In Inches
1044	0	0	.000
1044	5	930	.017
1049	5	930	.017
1050	12.7	2350	.026
1105	12.7	2350	.026
1105	17.7	3150	.035
1110	22.7		.046
1115	22.7		.046
1115	27.7		.059
	. 1111 .		

1120 Stopped test - sag in "I" beam causing deflection in anchor bar.

TEST NO. 2

	Load		Deflection
Time	In Tons	<u>PSI</u>	In Inches
1137	5	930	.003
1142	5	930	.003
1142	12.7	2350	.015
1157	12.7	2350	.016
1157	17.7	3150	.023
1201	17.7	3150	.023
1201	22.7	4050	.034
1207	22.7	4050	.034
1207	27.7	4950	.045
1212	, 27.7	4950	.046
1212	32.7	5850	.060
1216	32.7	5850	.067
1216	36.0	6600	.075
1221	36.0	6600	.085
1222	32.7	5850	.085
1226	32.7	5850	.085
1226	27.7	4950	.078
1231	27.7	4950	.077
1231	22.7	4050	.068
1236	22.7	4050	.068
1236	17.7	3150	.057
1241	17.7	3150	.057
1241	12.7	2350	.043
1246	12.7	2350	.043

TEST NO. 2 (cont'd)

Time	Load <u>In Tons</u>	PSI	Deflection In Inches
1246	5	930	.018
1251	5 5	930	.018
1251	ő	0	.000
1300	0	0	.000
1300	5	930	012
1305	5	930	012
1305	12.7	2350	.000
1310	0	0	.000
1310	5	<b>′</b> 30	006
1315	5	930	Reset to .000
	deflecting downward and		
1320	5	930	.000
1320	12.7	2350	.016
1335	12.7	2350	.016
1335	5	930	.003
1340	5	930	.003
1340	0	0	006
1341	5	930	.001
1346	5	930	.001
1346	10	1820	.011
1351	10	1820	.011
1351	15	2750	.021
1356	15	2750	.023
1356	20	3650	.038
1401	20	3650	.038
1401	25	4550	.049
1406	25	4550	.050
1406	30	5450	.064
1411	30	5450	.064
1411	35	6300	.078
1416	35	6300	.083
1416	40	7200	.107
1421	40	7200	.109
Stop	Test		

and sandstones ranging from soft and friable to moderately hard.

- b. Character of Overburden Materials. Overburden materials comprise the foundation for the embankment, in the outlet works approach and discharge channels, and in the approach and discharge channels for the spillway. Overburden materials exposed in the inspection trench and cutciff trench consist of alluvial clays, silts, sands, and gravels in the floodplain between Stations 105+00 and 136+00, and residual overburden on the abutments. Residual overburden consisting of clay and silty clay was exposed in the approach and discharge channels for the spillway. The outlet works approach and discharge channels were excavated in fluviatile terrace and floodplain alluvial materials consisting of clay, sand, silt, and gravel.
- c. Character of Primary Materials. The Pawpaw Formation comprises much of the foundation and was exposed in the outlet works and the spillway excavation. The Pawpaw is relatively level and finished grade was often on or near bedding planes. See Figures 13, 16, and 18. In the outlet works foundation, the clay shale is generally soft to moderately hard, unweathered, gray to dark gray and thin to medium bedded with scattered sandy seams and occasional sandstone seams north of Station 27+00. South of station 27+00 the clay shale contains up to 50 percent fine-to-medium grained sandstone and sandy seams. The base of the sandy phase was encountered at elevation 523, Station 36+15 in the chute foundation. A 2- to 3-inch thick fossiliferous zone was exposed near the base of the chute at elevation 520.0. Excavation,

cleaning of shale surfaces, and placement of fill are shown in Figures 51 through 64. The stilling basin foundation surface was described as shale, soft, slightly sandy with occasional sandy pockets and zones, fossiliferous, gray. See Figures 63 and 64.

The sill foundation for the limited use spillway was excavated down to a sandy, stiff, yellowish-brown to light gray clay, underlain by about 3 feet of gravelly clay. The edges and narrow sections in the middle, horizontal part of the foundation were keyed into weathered shale of the Pawpaw Formation. The approach and discharge channels were excavated in sandy clay. See Figures 27, 28, and 29.

9. FOUNDATION TREATMENT. No grouting was necessary at the project and no dental concrete or broom grouting were utilized.

## 10. FOUNDATION INSTRUMENTATION.

- a. General. The instrumentation program at Ray Roberts Dam was designed to monitor five basic areas which are discussed below. A plan of instrumentation is shown on Plate 57. The following descriptions are taken from "Periodic Inspection No. 1, Ray Roberts Lake, July 1987."
- (1) Initial Embankment and Closure Section. Nineteen piezometers were installed to monitor pore pressure development in the floodplain foundation during construction of the initial embankment and closure section. Settlement gages (12 deep settlement plates and 3 foundation surface settlement plates) were installed to monitor vertical movement of the foundation in the floodplain, and 8 surface



Figure 51. Outlet works, left side looking upstream. Fresh shale surface prior to placement of impervious material.

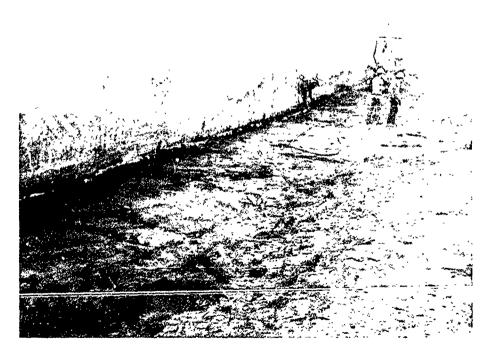


Figure 52. Same as above.

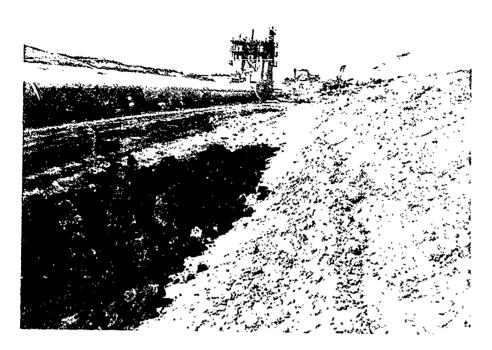


Figure 53. Outlet works conduit, left side, looking upstream. Placing fill on fresh shale surface.



Figure 54. Outlet works conduit, right side, looking upstream. Fresh shale adjacent to conduit.

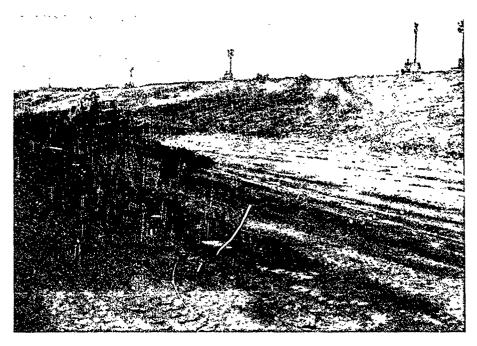


Figure 55. Outlet works excavation, right side looking downstream. Placing fill on fresh shale surface.



Figure 56. Outlet works, right side, looking upstream. Fresh shale surface.

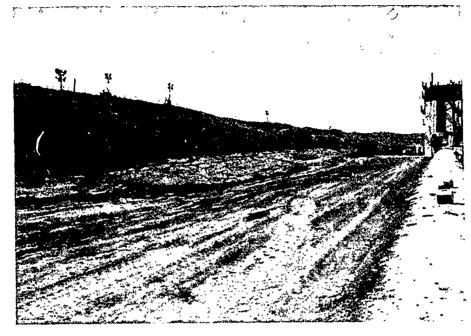


Figure 57. Outlet works, right side looking upstream. Cleaning shale surface in increments prior to placement of fill.



Figure 58. Outlets works conduit, looking upstream.



Figure 59. Outlet works looking downstream from tower.

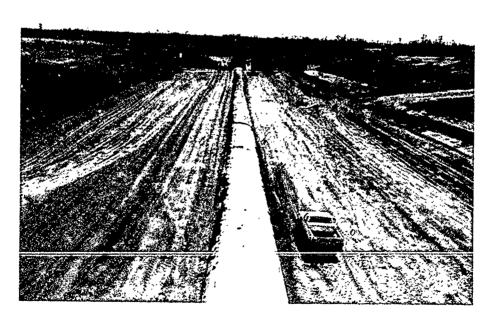


Figure 60. Same as above.



Figure 61. Outlet works, right side, looking downstream. Cleaning shale surface prior to placement of fill.



Figure 62. Same area as above.

)



Figure 63. Stilling basin. Spraying aerospray.

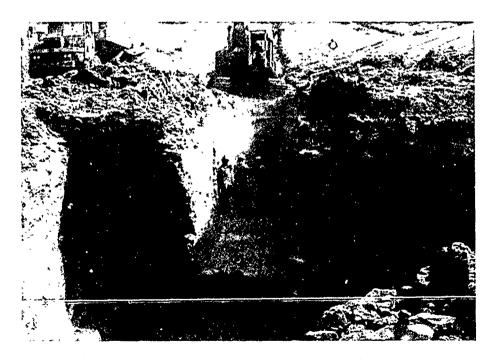


Figure 64. Excavation for discharge from valve vault.

reference marks were provided to monitor embankment movement. Twelve inclinometers were installed to measure lateral displacement of the foundation during construction of the initial embankment and closure section. Of primary concern in planning the instrumentation program was the performance of the initial embankment which was designed to preload and consolidate the floodplain soils.

- (2) Left Abutment. Nine piezometers were installed to monitor potential seepage effects at the left abutment (the upper portion of the abutment consists of pervious strata) including uplift pressures acting on the downstream portion of the embankment.
- (3) Embankment Underseepage. Twenty-six seepage piezometers were installed in the embankment foundation to monitor underseepage.
- (4) Outlet Works. To monitor movement of the outlet work structure, reference pins were installed within the conduit, on the stilling basin walls, and on the service bridge.
- (5) Embankment Crest. A set of embankment station monuments has been installed along the downstream side of the crest to monitor post-construction settlement.
- b. Schedule of Instrumentation Reading. Instrumentation located at the project will be read by CESWF-ED-G personnel according to the following schedule, or more frequently, if deemed necessary.
  - o Piezometers quarterly
  - o Inclinometers annually
  - o Seepage Interceptor monthly and when pool reaches 580, 590 600, and 632.5

- o Settlement Gages quarterly and when pool reaches 580, 590, 600, and 632.5
- o Outlet Works Reference Pins semiannually
- o Embankment Reference Marks quarterly
- c. Settlement Plates and Deep Settlement Plates. Settlement Plates SP-1 through SP-3, and deep settlement Plates DSP-1 through DSP-12 were installed in the floodplain foundation prior to and during initial embankment construction to monitor foundation settlement. Settlement plates consist of a 36-inch square, ½-inch thick steel plate placed within the foundation materials and welded to a steel riser pipe extended through the embankment fill.
- d. Inclinometers. I-1 through I-12 were installed within the floodplain embankment foundation prior to construction of the initial embankment to monitor horizontal deflection within the foundation. To provide a fixed frame of reference, all inclinometers were anchored in the primary clay shale. Inclinometers consist of a 3.34-inch diameter grooved ABS casing manufactured by Slope Indicator Company, Seattle Washington. Inclinometers were extended through the fill and steel casing.
- e. Piezometers. Piezometers P-1 through P-43b have been installed within the embankment foundation materials to monitor foundation performance during construction and after impoundment. Open system piezometers utilizing porous plastic tips as manufactured by Slope Indicator Company, Seattle Washington, were installed using 3/8-inch diameter PVC risers and extended through the fill with steel casing.

Piezometers P-1 through P-19 were installed within the floodplain embankment foundation prior to construction of the initial embankment to monitor excess pore pressure development during construction. After embankment completion, piezometers P-20 through P-36 were installed on the downstream toe and slope within the sands and gravels overlying the shale. Piezometers P-37 through P-43b were installed after embankment completion, within the sandy abutment materials. All Piezometers (P-20 through P-43b) will monitor seepage within the foundation materials during and after reservoir filling.

- f. Surface Reference Marks. Reference marks consisting of a brass monument, set into a 6-inch diameter pipe filled with concrete, were installed within the floodplain embankment to a depth of 5 feet to monitor vertical movement.
- g. Reference Pins. Reference pins were installed along the outlet works conduit invert, stilling basin monolith walls, and service bridge. Reference pins which consist of bronze bolts embedded in concrete are used to monitor vertical movement of the monolith or slabs, and relative movement between monoliths or slabs.
- h. Seepage Interceptor System. A seepage interceptor system has been installed within the left abutment embankment foundation to collect underseepage. The discharge is currently being monitored to record the normal ground-water flow. Flow from the system will be monitored, along with piezometers P-37 through P-43b, during impoundment when the pool reaches elevation 580, 590, 600, 620, and 632.5.

- 11. POSSIBLE FUTURE PROBLEMS. At the time foundations were approved and the dam completed in October 1986, no potential for future problems was apparent. The first periodic inspection was performed in July 1987. By that time several minor skin slides had occurred in the spillway approach channel slope. It was concluded that this problem could be easily remedied. Other minor problems are addressed in "Periodic Inspection Report No. 1, July 1987." The dam is considered to be in good general condition.
- 12. RECORD OF FOUNDATION APPROVAL. A record of the date when each section of the outlet works foundation was approved is shown on Plate 58. Records of approval of final foundation grades were kept for all foundations on which concrete was to be placed. The foundation for the emergency spillway was approved as a unit on 11 February 1984.



Figure 65. Outlet works, right side looking downstream. Cleaning shale surface in increments prior to placement of fill.



Figure 66. Placing fill.



Figure 67. Outlet works. Placing fill.



Figure 68. Outlet works backfill, looking downstream.



Figure 69. Excavation for valve vault.

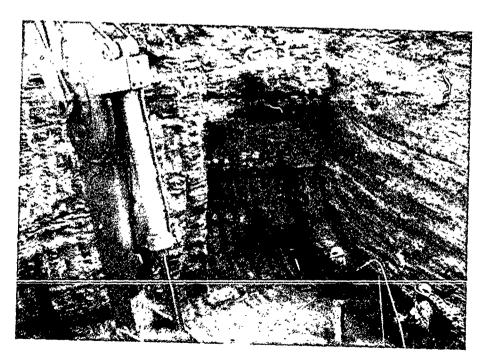


Figure 70. Same as above.



Figure 71. Discharge pipes from valve vault.

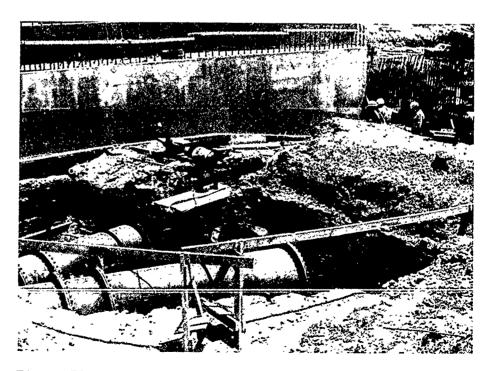
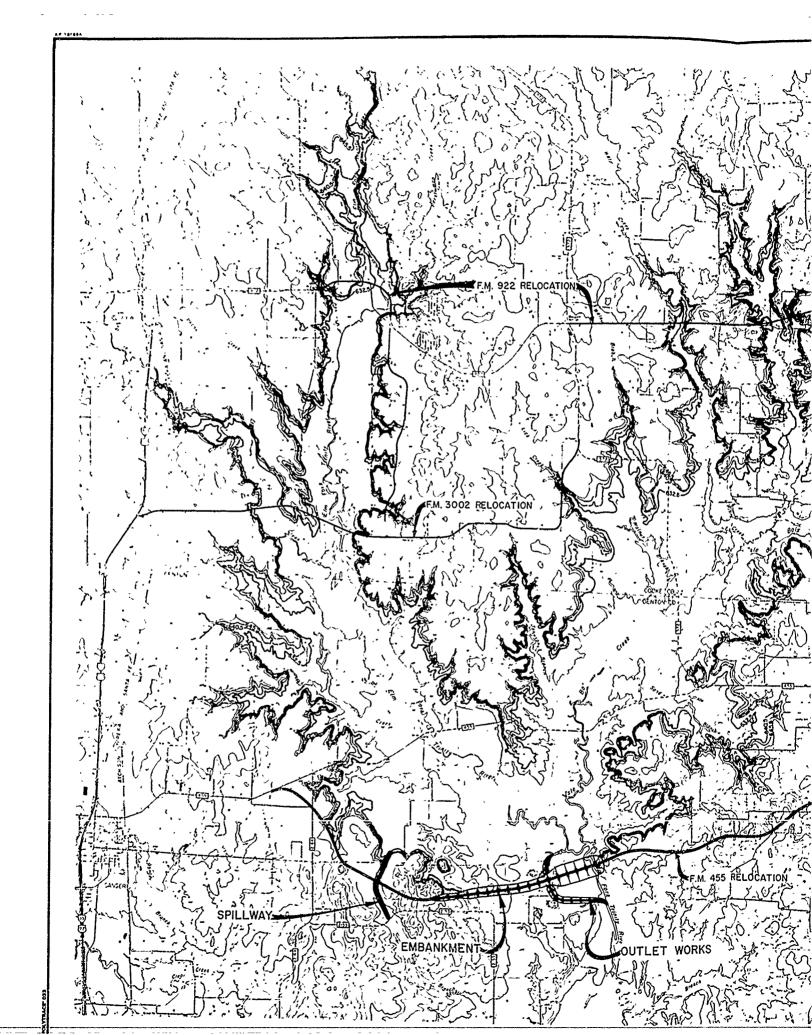
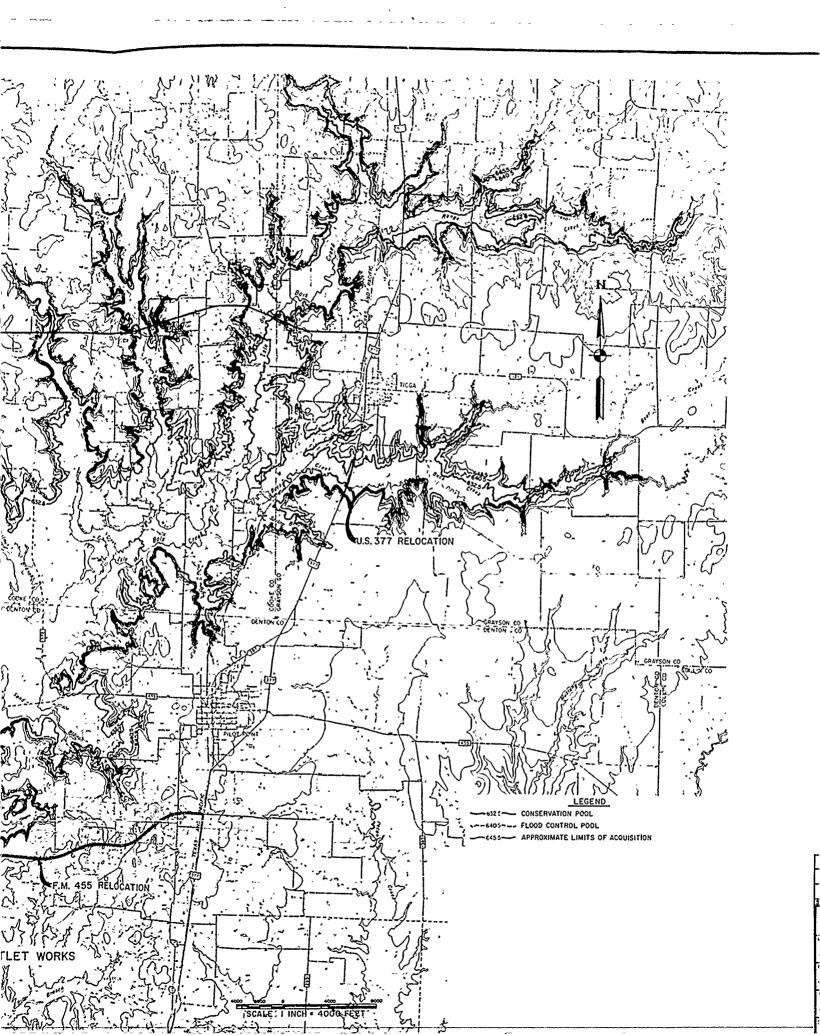
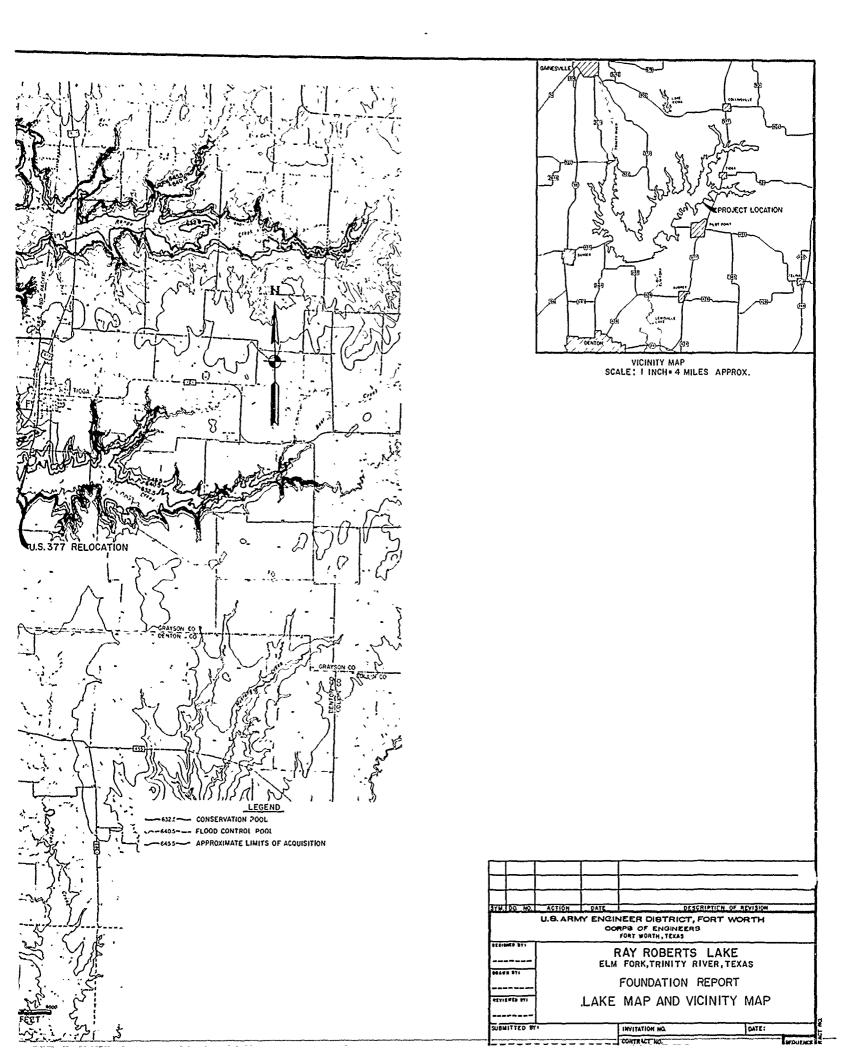
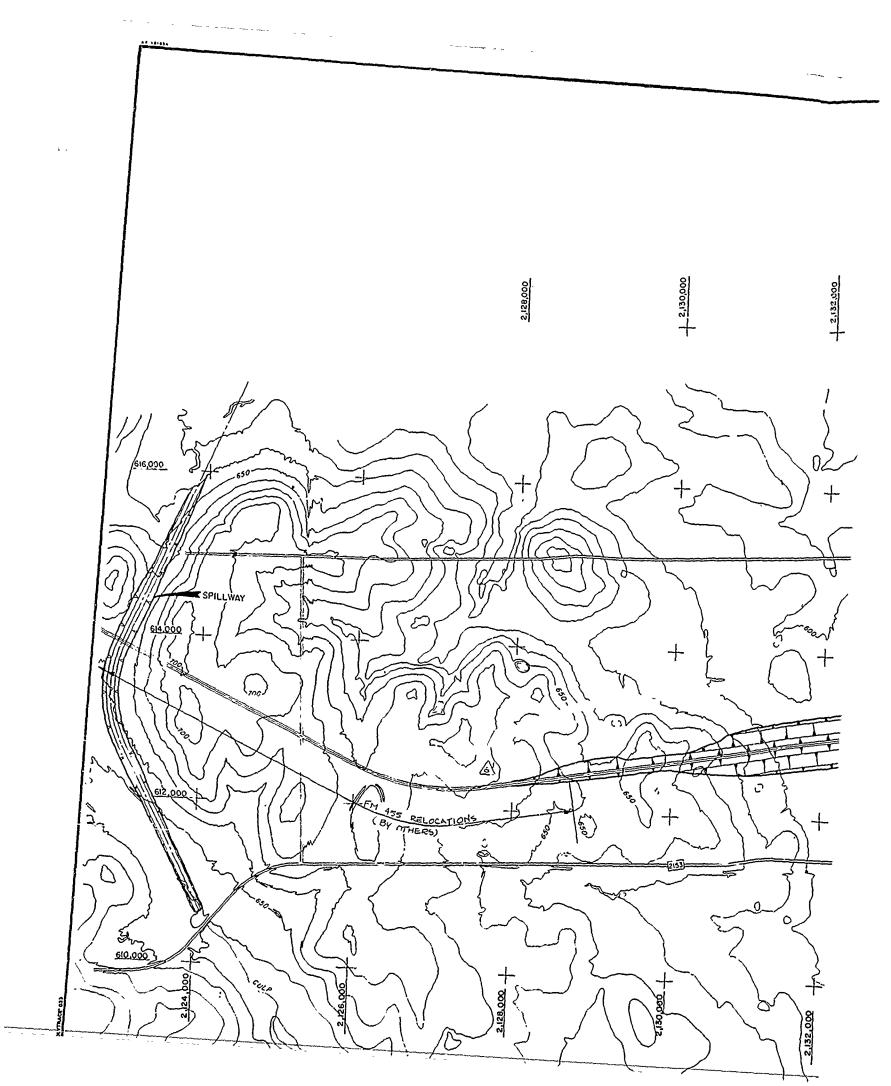


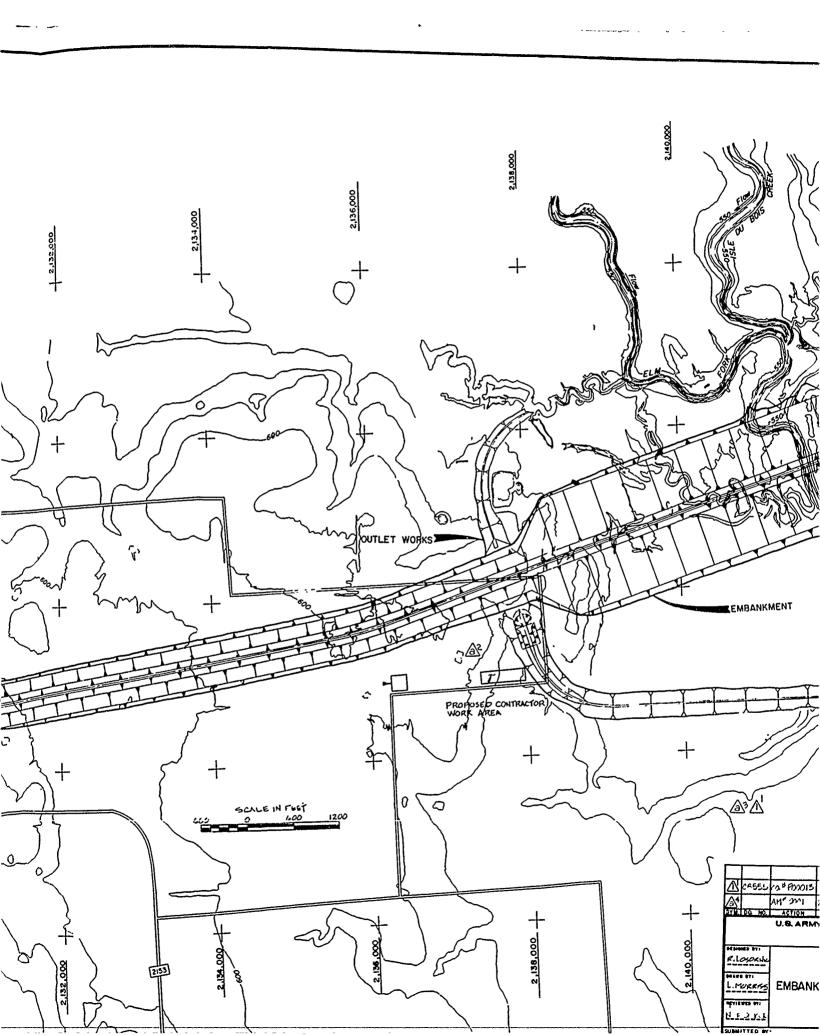
Figure 72. Same as above.

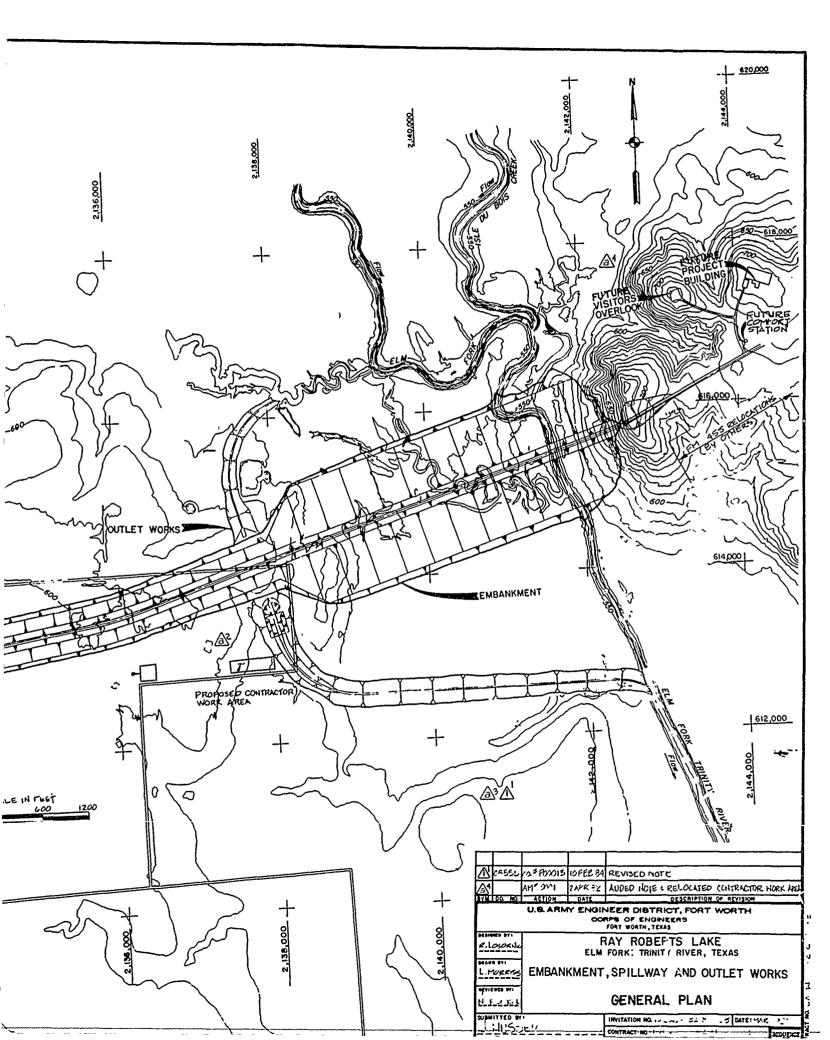






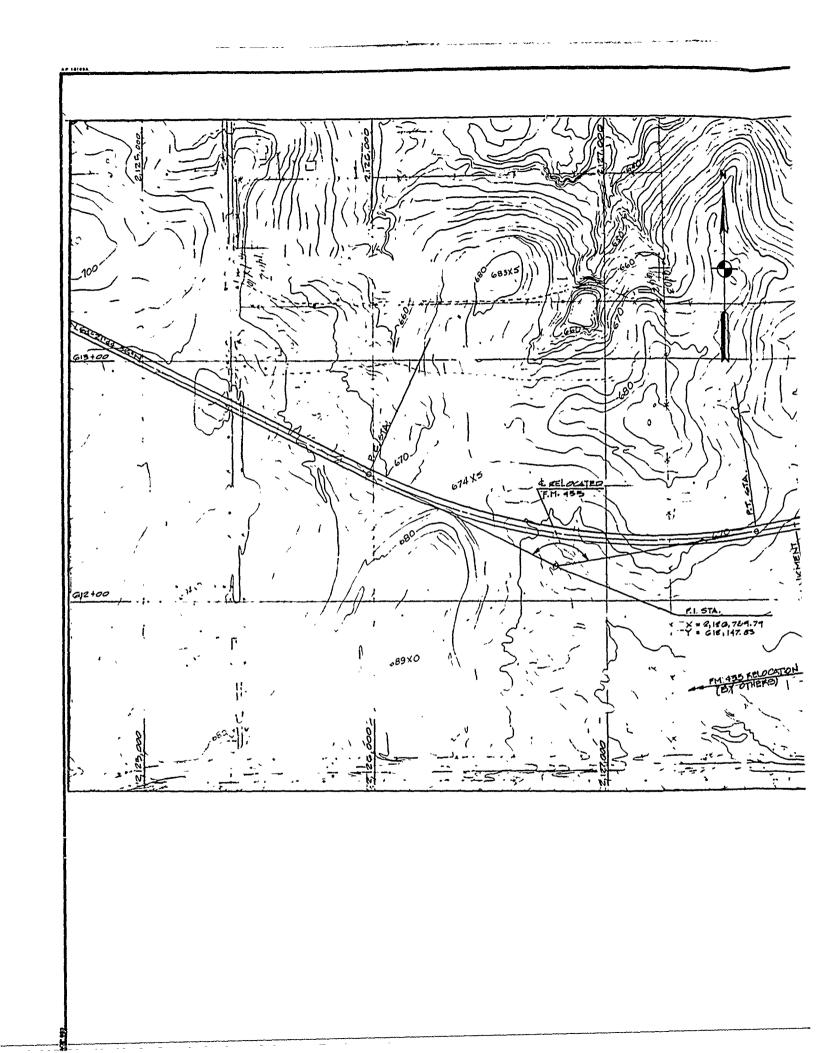


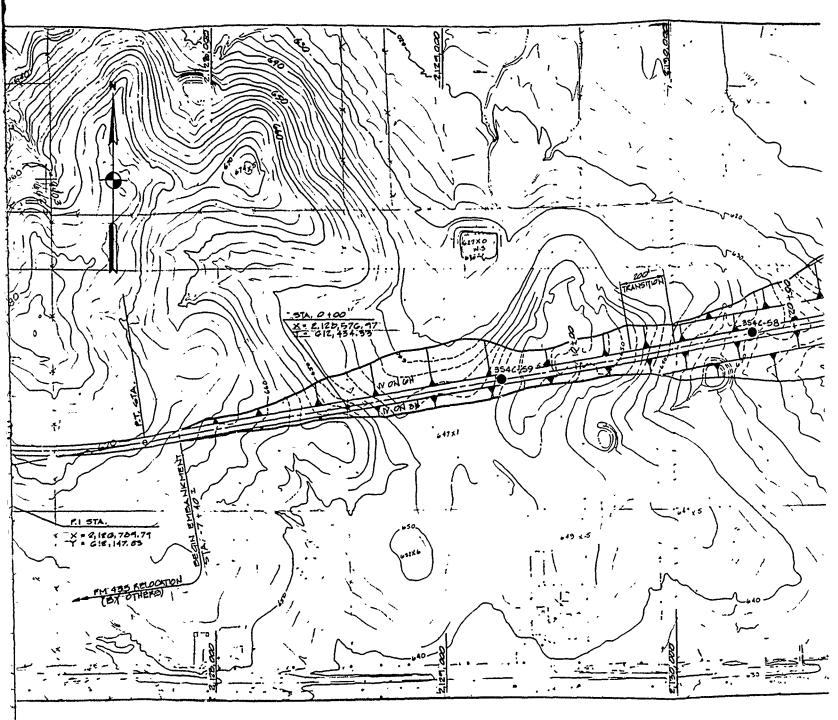




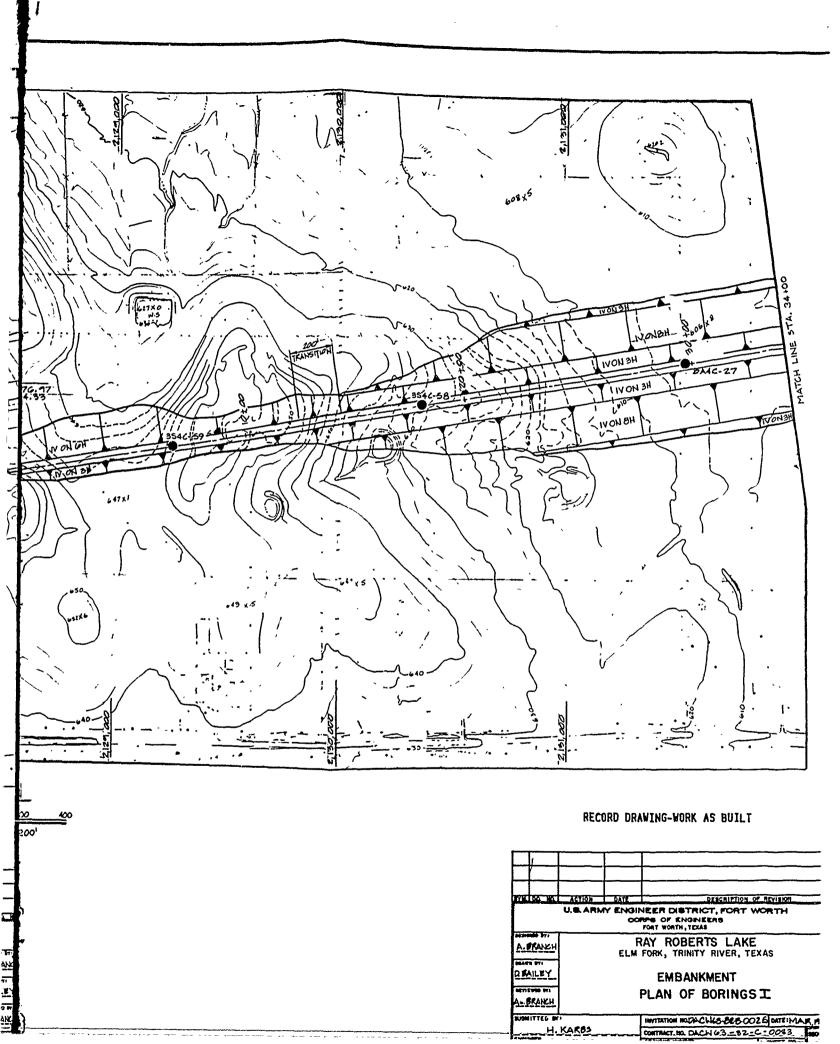
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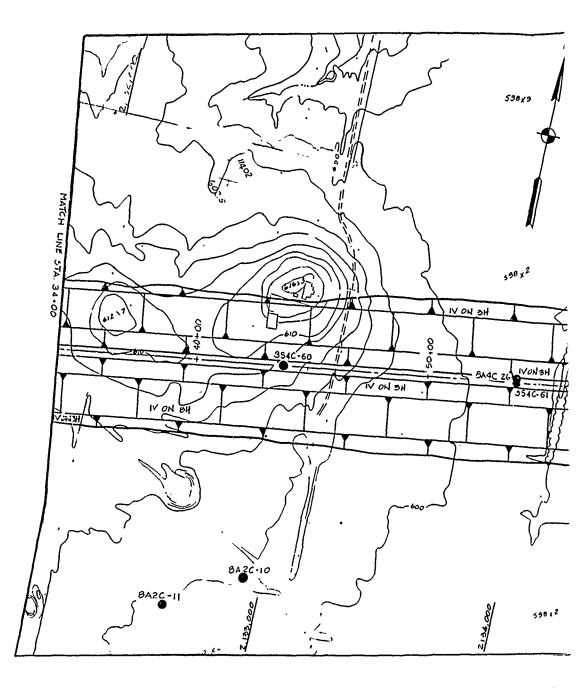
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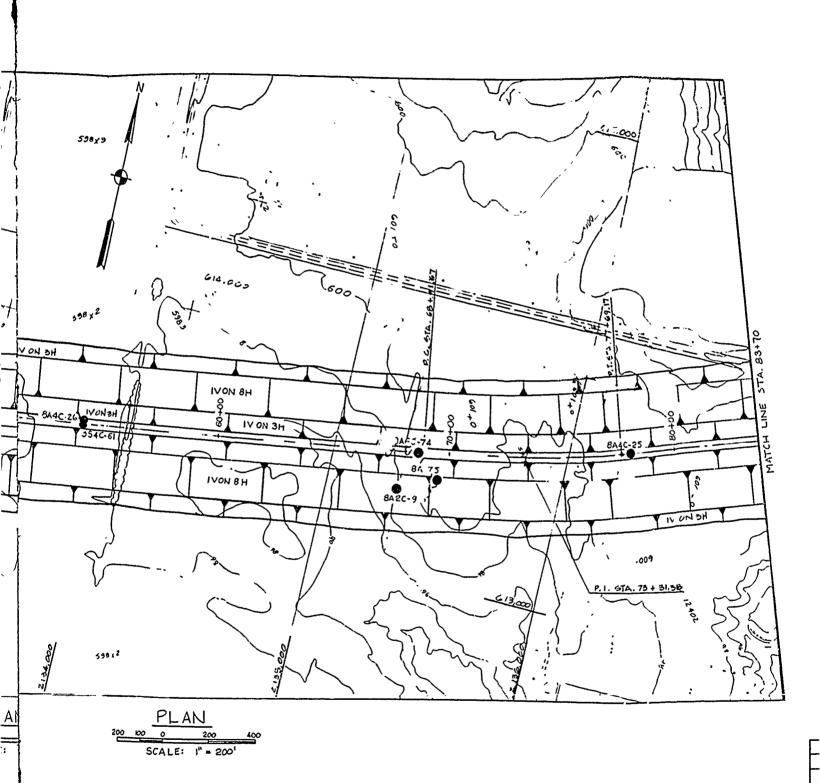


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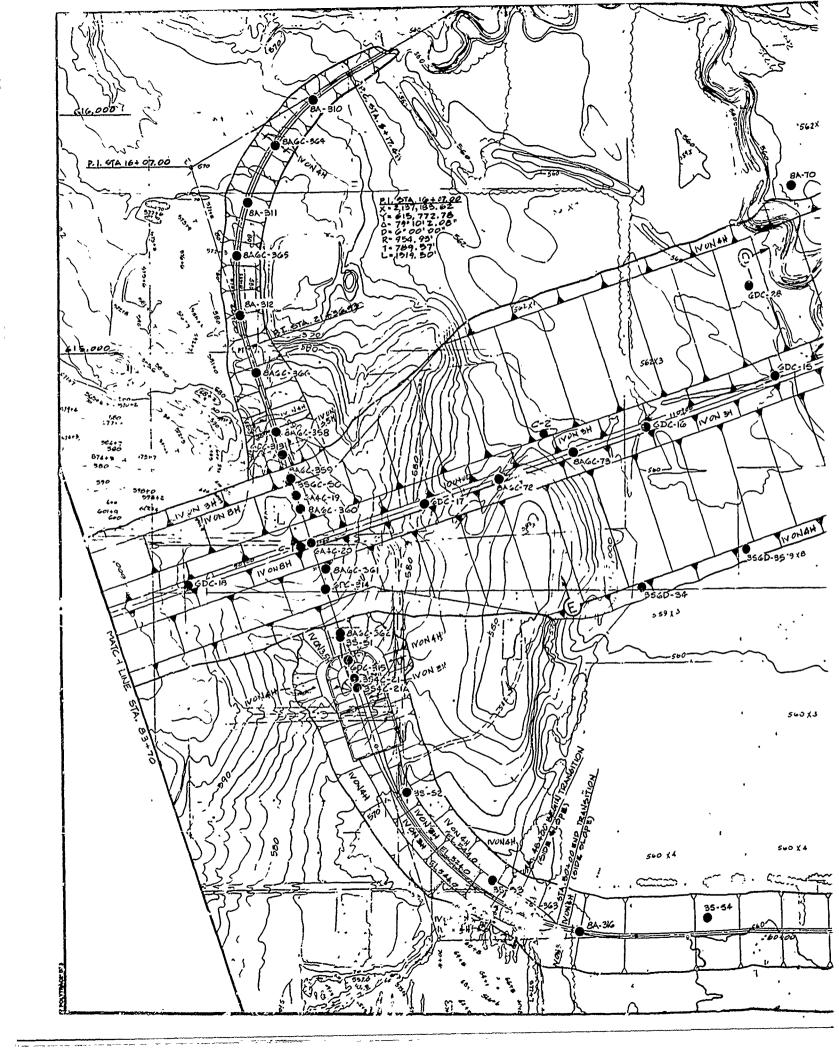
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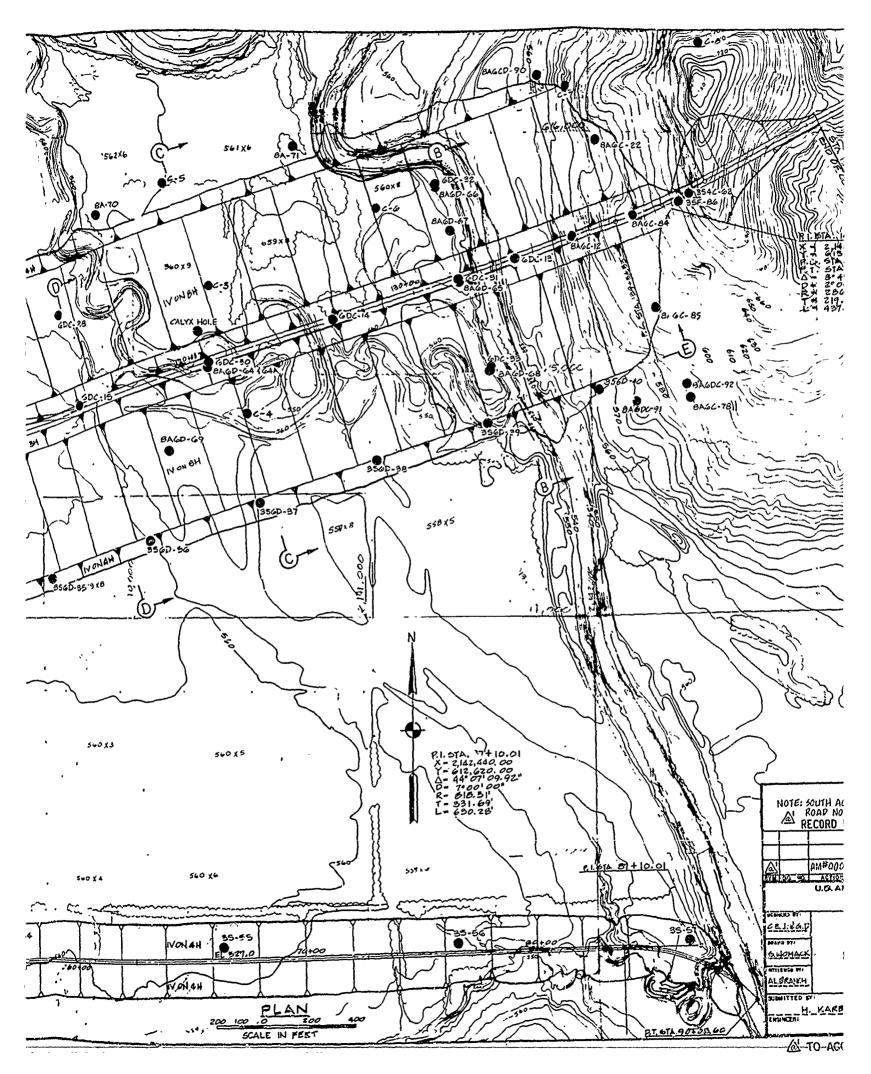


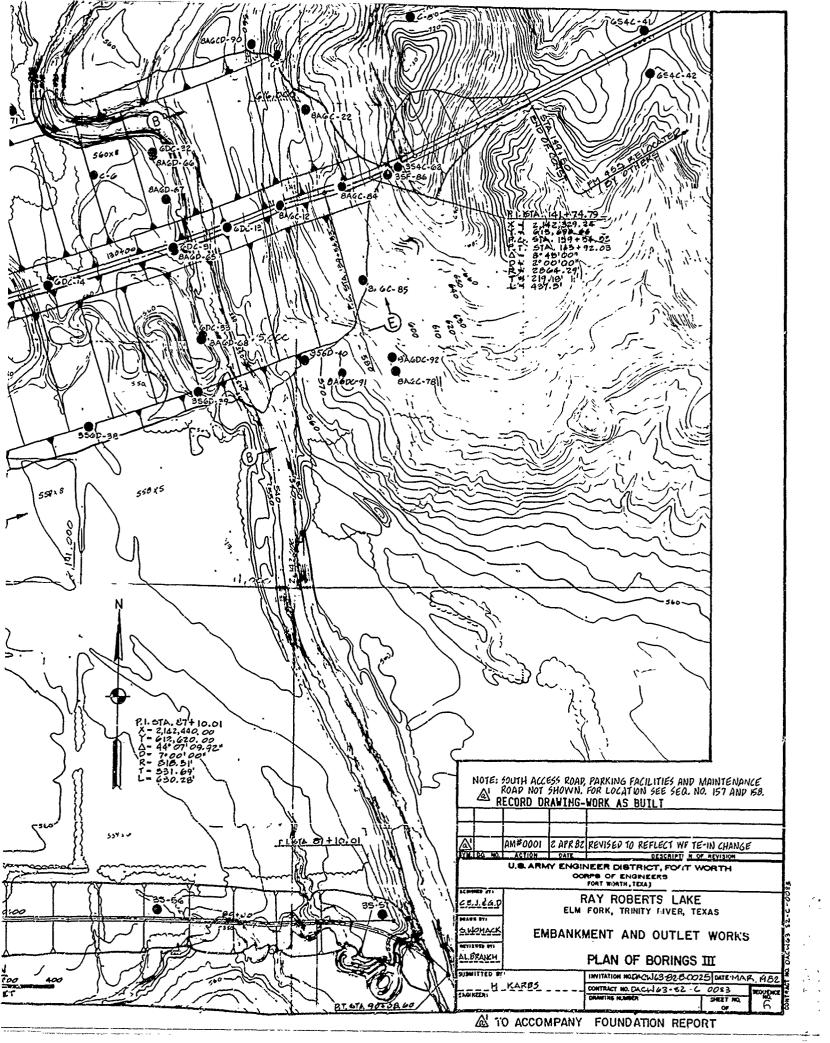
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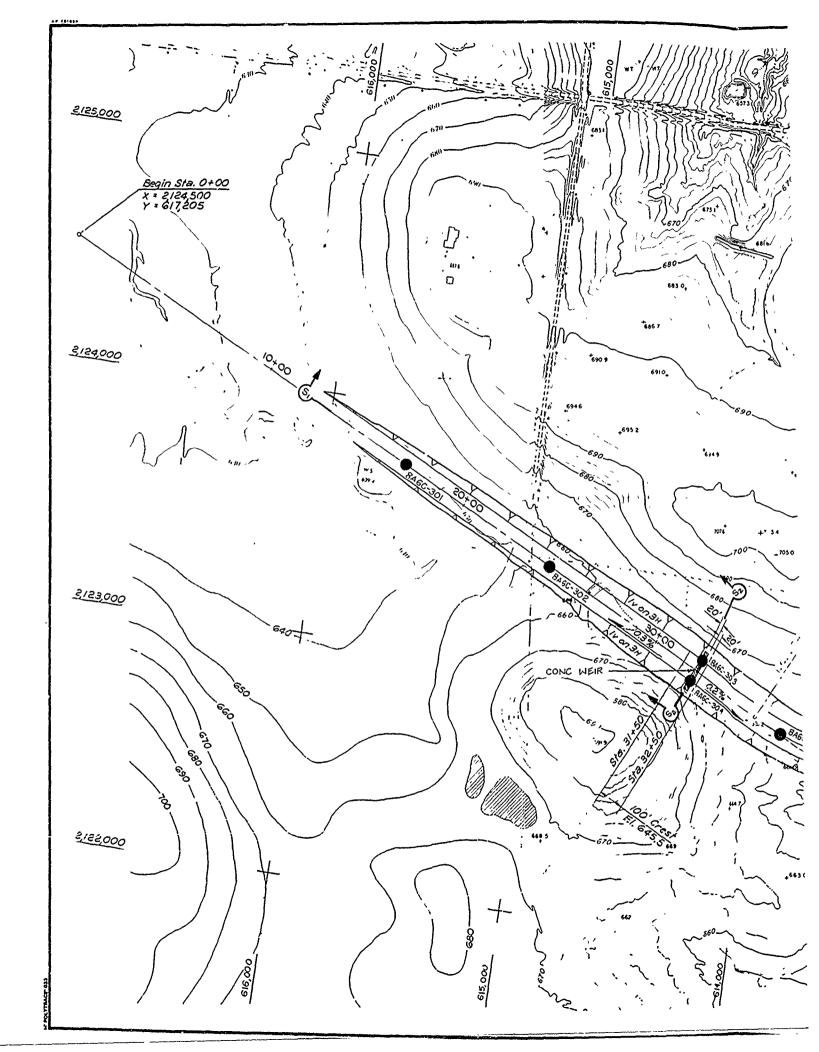
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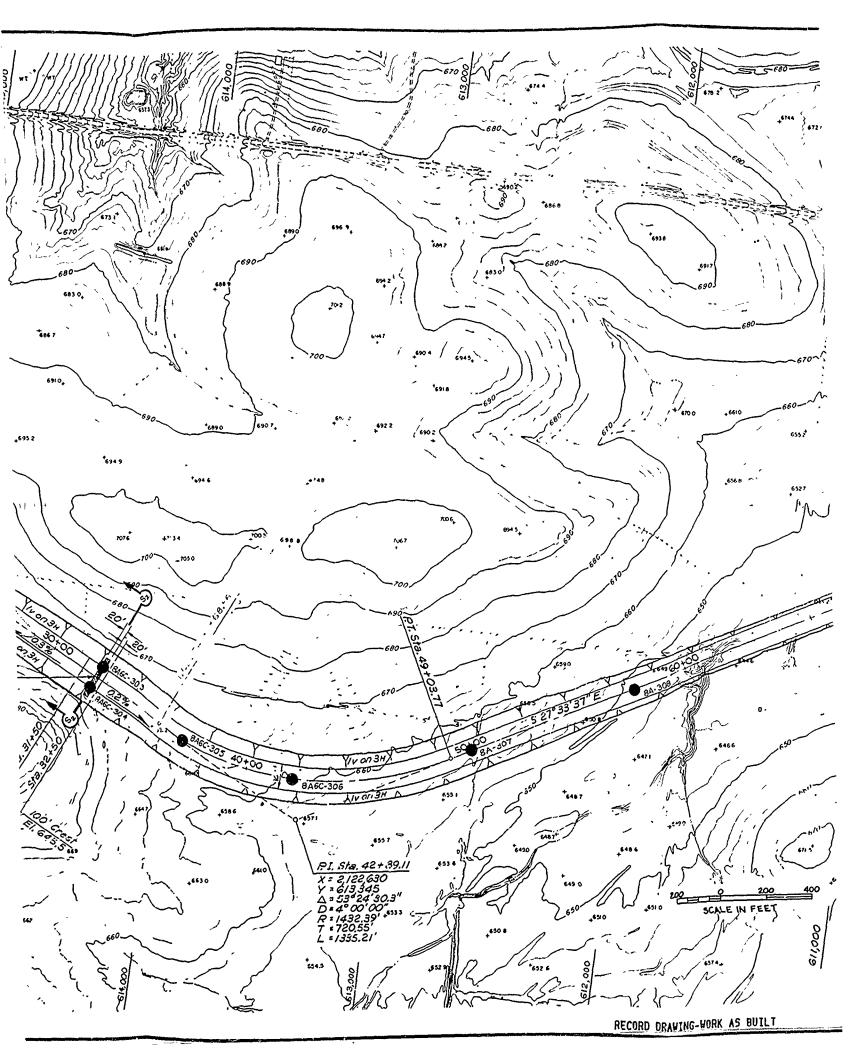
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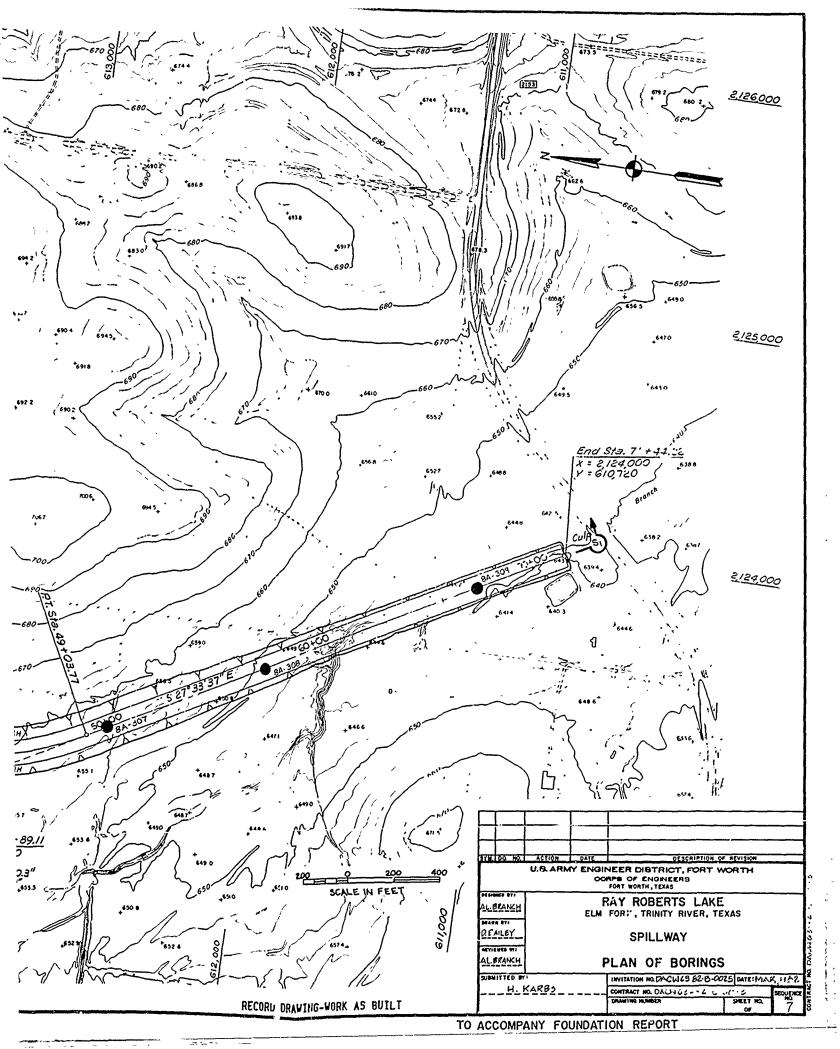












# UNITED STATES ENGINEER OFFICE ENGINEERING DIVISION FIELD INVESTIGATIONS SECTION GALVESTON, TEXAS LOG OF CORE ORILLING

	Date 20 August 1946									
	Site Aubrey									
	In.	C-1	Drill w			Lecation Ro. Sta07 24				
		111				Slevation of Tea of Hole				
	41 1		2-*n			Death of Overburden				
Heth		f Orb. :	Sanglin	* Fart	n Auger	Elevation of Top of Regrock 581:21				
Set_			•	1	.C43 ing	fulled Casing Tes ( ) #0 ( )				
Dest	h te	Mater	Table	97.0		Elevation of dater Table				
		pth of Ion Stop		16.0		Annualities RI.CE & Bacauses				
		e Start			7 1019	Date Hote Completed O January 1979				
			Tubes			Hartes Upper Sin Creek C.L. Sta. 0/00				
		f Bores		3		Herese Upper Elm Creek C.I. Ste. 0/CO				
Clas	sife	ed by_				Subartled by				
MOS	1	LOSSES								
15	RUNS	8	DEPTH		e. e	CLASSIFICATION AND REMARKS				
ğ	2	2 6	0,0		ELEV. 597.21	CENSSIFICATION AND REMARKS				
<b>—</b>			0,0	7.7	ا """(ر					
!	1	١ ٢		<i>Y:X</i>	- 1	0.0 to 8.0 CLAY, sandy, rust to dark				
		-		1	- 1	brown.				
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1		<b> -</b>	8.0		589.21	ļ .				
		<b> -</b> _		///	1					
		N		///		8.0 to 16.0 SAID, clayey, tan.				
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1	1	15		ンン	-					
	]	1 1	16.0	122	581.21	16.0' to 19.4' LILESTONE, fossiliferous,				
1		l		اغتغا		marly, brown to tan, surface or near surface				
		l L		17.67		outcrops of this material have been colored				
		l L	19.4	1777	577.81	by iron oxide.				
1	1	20	194		٠٠،،،،					
1	1	1 L				19.4° to 28.0° SHALE, sandy core washed				
1 1	ı	lL				away.				
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		l E								
	1	Ιľ	28.01		569.21	1				
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1	١	30								
	l	ו ו				28.0 to 32.0 SHALE, blue, stained by iron				
		ו ו	32.01		565.21	exide.				
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1 1	1	1 🚩			į į	l				
1		1 1				32.0' to 17.0' SHALE, compact, laminated,				
	1	1 1				soft, thin shell seams.				
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		i 1 <sup>42</sup>			1	<b> </b>				
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3834-C-2\* OF CORE DRILLIES CORT Site \_\_\_Aubrey Dam Hole No..

550,21 50 50 355 \$7.0' to 61.0 536.21 65 61.0' to 527.21 70 70.0 75 70.0' to black, sh 517.61 79.6' to 5 506.21 91.0° to 9 black, for 25

c7.0\*

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\$404-C-1

## UNITED STATES ENGINEER OFFICE ENGINEERING DIVISION FIELD INVESTIGATIONS SECTION GALVESTON, TEXAS

	LOG OF CORE DRILLING									
						5110	ubrey. Date 20 August 1946			
1010		·_c-2	0	111	10		Location of Tes of Note 552.0:			
lyse	• • •	\$11 _			rch		Elevation of fee of HoleSA2.01			
3 1 E 4 4 a 4 b	7 . <b>.</b>	Coro				th Auser	Death of Overburden 28.00  Elevation of Top of Bedrach 534.01			
Set					. • /		Pulled Casing Tes ( ) No ( )			
***	th t	. Vat	er la	110			Elevation of dater lable			
Dve		repth repth	et Re Lieeki	10.	60	8.01	Core Orilling 40.01 S Recovery			
Dat:	e Ke	1e 31	arted		<u>L Janu</u>	ry 1030	Date Hele Completed 6 January 1030			
2 y = 1	er	•f Ja	rs/lu	bes.		1 2	Marked Upper Elm Creek C.1. Ste. 11207			
Feel Clas	90 C 1	of So	***-			<u>-</u>	Harted Uover Elm Creek C.L. Stn. 11/27			
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BOX NOS	1	2								
×	RUNS	LOSSES		EPTH		£1.514	AL ACCICICATION AND OWNERS			
_≊.	₹	131	ຂຶ້	0.0		ELEV. 562.01	CLASSIFICATION AND REMARKS			
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	ı	1 }	-		1.7	Į.	0.0° to 5.1° SAED, clayey, rust.			
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	1	1 1	7	5.1	1/2					
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		1 t	-			1	5.1 to 19.8 CLAY, sandy, dark brown to			
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		۱ ۱			///		19.8° to 28.0° CLAY, sandy, yellow-blue.			
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- 1		-	. 40	••••	=	534.01				
-1		5	Q							
	1		_				28.0 to 38.0 MALE, sandy, laminated, blue.			
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- [	- 1		36	3.01		523.5°	38.0° to 38.5° SLEDSTORE, gray			
-1	- 1		38	.50	النبنا	523.50	38.5' to 42.0' SEALE, very sandy, gray.			
1	- 1	4	Q				1			
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1	- {	F	^	- 1			42.0° to 68.0° SHALE, compact, slightly			
1	- 1	5	¥	- 1			Britis   Disck, fossiliferous, Sandstone			
Ţ	J	r		- 1			band from 54.00 to 54.50.			
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# UNITED STATES ENGINEER OFFICE ENGINEERING DIVISION FIELD INVESTIGATIONS SECTION GALVESTON, TEXAS

### LOG OF CORE BRILLING

31te	pate 20 August 1946  prey Sheet 1 ef 2
	Location X.L. Sta. 11/27
Type of Bit 2-Inch	Elevation of Top of Hole 562.09  Dopth of Overburden 25.09
Method of Ovb. Sampling ERTYN AUCOF	- Clevation of Too of Sedrock 534.01
SetofCasing Septh to Water Table	Fulled Caping Tes ( ) No ( ) Elevation of Water Table
Total Depth of Hole68.0'	Core Orilling AO.O: S Recovery
Sate Hole Started h January 1030	Date Hete Completed 6 January 1939
Support of Sales 2	Harted Upper Elm Greek C.1. Sta. 11/27 Herted Upper Elm Crock C.1. Sta. 11/27
Classified by	Submitted by
NOS.	
X N N N DEPTH ELEV.	CLASSISICATION AND DOLLARD
00 000 SEEN. SELEV. S62.00	CLASSIFICATION AND REMARKS
	0.0 to 5.1 SAID, clayey, rust.
556.9	
	5.1 to 19.8 CLAY, sandy, dark brown to
	black.
20 19.81 512.21	
	19.8: to 28.0: CLLY, sandy, yel.oblum.
	, , , , , , , , , , , , , , , , , , , ,
28.01 534.01	
	28.0' to 38.0' SEALE, sandy, laminated, blue.
28.0°	38.0' to 38.5' SAMDSTONE, gray
	38.5 to \$2.0 SEALE, very sandy, gray,
i2.01 520.01	
<del>-                                     </del>	
	42.0' to 68.0' SHAIZ, compact, slightly
	sandy, black, fossiliferous. Sandstone band from 54.00 to 54.50.
	l
<u>                                    </u>	j
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	j
68.01	•
	Bottom of hole
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RECORD DRAWING-WORK AS BUILT

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इ <u>४</u> ज	00 00	ACTION	OAFE	0625.	TION OF REV SICH				
		U.S. ARM	Y ENGII COI	NEER DISTRICT, FO RPG OF ENGINEERS FORT WORTH, TEXAS	RT WORTH				
				RAY ROBERTS L					
****	• • •			FORK,TRINITY RIVE IKMENT,SPILLV					
92711	( * 10 m.			OUTLET WORK					
		LOGS OF BORINGS C-I AND C-2							
51.84	1111ED BY			INVITATION NG DACW63-826	CO25 DATE MA	KAC2			
CHARLES				CONTRACT NO. DAGW 63- 82.		363.5×6			
ГО	ACCO	MPANY	FOLIN	DATION DEPORT		1			

### UNITED STATES ENGINEER OFFICE ENGINEERING DIVISION FIELD INVESTIGATIONS SECTION GALVESTON, TEXAS

LOG OF CORE DRILLING

					11te Aubr	941, 20 August 1946
Hole	He.	C-3		Orill Ho		Lecation I. Sta. 28/00
				2-Inch		. Elevation of Too of Hole
2616	• • •	f Gu	<u>.                                    </u>	Saapling i's	rth Auger	Death of Overburden
Set.						Pulled Casing Tes ( ) #o ( )
Dest	in to	. Wal	er ef	fable		Elevation of dater Table
044	rbur	444	84-1	eling 45.	0' nuary 1739	Care Orilling 22,01 1 tecovery
Date	t to	le \$1		led	nuary 1739	Hartes Upper Elm Greek Cala Stan 28/00
						Markes Upper Elm Creek C.L. Sta. 28/00
Clas	111	** 1	7_			_ Submitted by
ROS		s				
ž	RUNS	LOSSES		050311	e. e	61 - CC1 C141 T141 - 114 GC11 - 015
ğ	3	9	0	0.01	559-21	CLASSIFICATION AND REMARKS
			1			0.0' to 5.8' SILT, clayey, dark brown.
			1 1 1 8	5.8	559-41	5.8' to 13.4' CLAY, sandy, brown.
			1 1 2	19.4	545.81	
			120			13 4' to 25.6' SAID, silty, dark tan.
			25	25.25	533.60	
			181 1 1 18	34.0	S521	25.6' to 34.0' CLAY, sandy,light brown.
			1 1 1 1 1 1 1			34.0° to 45.8° SAND, clayey, slate, tan to blue.
			_			,
	لے	لـــ	-55	13.8	취 2127.	43.8 to 45.0 LILESTONE GRAVEL
			1181115			
			1118111			\$5.0° to 67.6° SHIE, black with cross- bodded shale and sand somes.
			70	67.	\$Ø.2*	Bottom of hole

380'E-C-1

UNITED STATES E ENGINEERING FIELD INVESTIGA GALVESTO

Rele Ro. Cal Orill Ro.
Type of Bit Size of Core 2-Inch
Method of Ove. Sempling Warth Sucar
SetefCasing
South to Mater Table
Querburden Sampling 16.01
Date Hole Started 6 January 1939
Evalur of Jars/Tobes2
Rusber of Bores1
Classified by

BOX NOS.	RUNS	LOSSES	ا	0.0°	,		ELEV. 556.91	
			-					0.01
			1811161	8.0			548.91	
			1 1 15					8.0*
			1 1 1 1 1 1 1 1	16.0			540.91	16.0 blue
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UNITED STATES ENGINEER OFFICE
ENGISEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

				LOG OF	cost priffine Date 20 August 1946
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ral e		C-3	0-111 #0	*****	tecation Is
					T floreties of ten of Hold
\$120	•f	Core_	2-Inch		Depth of Overburden 10.01
Peti	•4 •	f Ovb.	Sameling		Elevation of Top of Sedrock \$40.9"
Set				_Casing	Pailed Casing Yes ( ) No ( ) Clavation of dater Table
			Table	)1	Theretics of tottom of Mais 4/4491
		den Sen			Core brilling 70.01 Stecovery
Date	. Ke	le Stari	ted 6 Jenus	ry 1939	Bat Rele Cospleted 10 January 1939 Racked Upper Elm Creek 500 below 25/00
			/1,3432		Martee Upper Elm Creek 500° below 28/00
		of Boses ied by_	·——		Subatted by
	-				_ 30000000
NOS	ي	COSSES			
ă.	RUNS	8 0	0.01	556.91	CLASSIFICATION AND REMARKS
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!		l  -			0.0 to 8.0 SAMD, silty, dark brown.
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		<b> -</b>	e.o.	C1 0 00	
1		-		548.91	
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1	1	F	<b>5</b> //		8.0° to 16.0° CLAY, sandy, baff,
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			16.0	540.91	
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1 1	1		7		16.0: to 22.4: SHALE, compact, laminated,
					blue-black
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		-			22.4 to 52.8 SANDSTONE, gravelly, tan.
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LOT OF CORE DRILLING CONTINUATION STOT Site\_\_\_Aubrey Sheet 2 of 2 9.4.1 الهبيباتات 52.8: to 62.0: SBUE, compact, laminated, black. Shell marl at 57.0:. 63.00 100 100.90 62.0° to 63.0° SIEDSTONE, pyritic, gray. 63.0° to 72.3° MALE, gray, rotten. <u>55</u> 1 184 V. 72.31 75 72.3° to 82.0° SHALE, compact, laminated, black. 200 474.91 82.00 Botton of hole 20 Additional subsurface explorations indicate top of rock shown on this boring is in error. Material from 16.0 to 22.6 is probably clay. Sandstone shown from 22.4 to 22.8 is probably sand, The geologic section reflects these changes. Nov. 1979

1408-C-2

Hole No. C-L Sheet 2 of 2 Site \_\_\_\_\_Aubrey 52.8 504.11 52.8' to 62.0' STRIE, compact, laminated, black. Shell marl at 57.0'. 81... 63.00 62.0° to 63.0° SANDSTONE, pyritic, gray. 63.0° to 72.3° MALE, gray, rotten. <u>55</u> 20. 73. 44.6. 75 72.3° to 82.0° SHALE, compact, laminated, black. 82.01 Bottom of hole Additional subsurface explorations indicate top of rock shown on this boring is in error. Material from 16.0 to 22.4 is probably casy. Sandstone shown from 22.4 to 52.8 is probably sand, The geologic section reflects these changes. NOV. 1375 85

RECORD DRAWING-WORK AS BUILT

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		ELM	FORK TRINITY	RIVER, TE	CAS			
****		<b>EMBAN</b>	IKMENT, SPI	LLWAY	AND			
			OUTLET W	ORKS				
			LOGS OF B					
			C-3 AND					
SLEWITTED BY			INVITATION NO DACWES-82-8-0025 DATE MAR, 1982					
			CONTRACT NO CACHE	3-42.C 0	_ K ?	35.55		
ENGINEER			CRAWING MUNDER		SPEE" "; OF	9		
		7 = 2115	DATION DE	A CY				

### UNITED STATES ENGINEER OFFICE ENGINEERING DIVISION FIELD INVESTIGATIONS SECTION GALVESTON, TEXAS

## LOG OF CORE DRILLING

Site	Aubrey 5001 abovs 101. Sta. 26700  location I.
SO O O O O O O O O O O O O O O O O O O	CLASSIFICATION AND REMARKS
553.81	0.00 to 0.50 SHIT, clayey, dark brown.
20 24.00	6.5° to 24.0° CLAY, silty, light brown.
36.0° St.3°	26.0° to 36.0° SAND, fine grained, tan.  36.0° to 37.0° DIMESTONE GRAVEL  37.0° to 50.8° SEALE, very sandy, gray, with clay "ironatone" concretions.
50 50.8 509.5 577.3 505.8 509.1 577.2 505.8 509.1 501.3 501.	50.8° to 53.0° SHAIE, laminated, compact, black. 53.0° to 53.5° SHELL MARL 53.5° to 57.2° SHAIE, laminated, compact, black. 57.2° to 59.0° SAKDSTONE, gray and sandy shale.
50 55 55 - 68.01 492.31	59.0' to 68.0' SHALE, larinated, compact, black.  Bottom of hole

UNITED STATES ENGINEER OFF ENGINEERING DIVISION FIELD INVESTIGATIONS SECT GALVESTON, TEXAS

LOS OF CORE DRILLIAG

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	Held		. <u>c-6</u>	Acill so	
	Type	• • f	111-	2-Inch	location zo
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	Set			ef Cas inc	Elevation of Pulles Caste
	Dep	th t	o Water	Table68.0!	
					- Elevation o
	Pat	K.	le Stat	ted 16 January 10	39 Core Brilling
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UNITED STATES ENGINEER OFFICE ENGINEERING DIVISION FIELD INVESTIGATIONS SECTION GALVESTON, TEXAS

						FOR OL C	ORE DRILLING	toto 20 August 1946
						SiteAub	Cey	3111
Hele	Ye.	C-6		orill z			Lecation Zo.	, Stat 30/00 -1 2
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## UNITED STATES ENGINEER OFFICE ENGINEERING DIVISION FIELD INVESTIGATIONS SECTION GALVESTON, TEXAS

				LOS OF	CORE DRILLING
				SiteAub	0 ste 20 August 1946   3het   2   2   2   2   2   2   2   2   2
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Tvas	-1	111			- FIAAUTION OF 199 OF HOTE
Size	•1		2-1	neh	Depth of Overburden28.09
Ne . h	• •	f Orb.	Janplin	Earth Auger	- Elevation of Top of Bedrock 502.99
Set.		14 . 1	•	fCasing	
Tata	N 10	Vater pth of	10010 _	95.01	Elevation of water Table  Elevation of Botton of Hole 495.9*
Ove		ien Saes	line.	28.01	Care Drilling 67.0' S Recovery
Date	Hel	. Start	641	2_January 1919	Core Drilling 67-00 S Recovery Date Hole Completed 16 January 1939
Feat		I Jarel	Tubes_	1	washed Manau Elm Creek Ca La Nina 200 ill.
			<u> </u>		Marked Upper Elm Creek Calla Standar IV
Clas	* I f )	** >>-			_ Subaltted by
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NOS.	ای ا	\$35501			
ğ	RUNS	× I	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
Lě.	ē	30	0.0	590.91	***************************************
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l	l	ΙC	8.71	582.21	į.
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Į.	ı			Z-Z	8.7' to 28.0' SAND, clayey, tan.
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UNITED STATES ENGINEER OFFICE ENGINEERING DIVISION FIELD INVESTIGATIONS SECTION GALVESTOR, TEXAS	Sile Aubrey	Hole NoC-7 Sheet 2 of 2
toe of cost prilling  Site _Aubrey	AS. 45.2° 545.7°	15.2' to 52.0' SHALE, black.
test to vater Table   State	538.91	52.0° to 72.0° SHALE, compact, laminated, black,
SO SO DEPTH SELEY. CLASSIFICATION AND REMARKS  O O O O O O O O O O O O O O O O O O O	55 55	
5.7' to 28.0' SAND, red and broken eandsto	72.01	72.0° to 83.0° SHALE, black, with gray sand streaks.
20 	83.01	83.0° to 95.0° SHALZ, very sandy, gray-black.
28.0° 25.2.9° 28.5° 5µDSTGE, red.  28.0° to 28.5° 5µDSTGE, red.  28.0° to 28.5° 5µDSTGE, red.  28.0° to 28.5° 5µDSTGE, red.  28.0° to 28.5° 5µDSTGE, red.  28.0° to 28.5° 5µDSTGE, red.  28.0° to 28.5° 5µDSTGE, red.	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Botton of hole

RECORD DRAWING-WORK AS BUILT

STM DC NO	ACTION	DATE	DESCRIPTION O	E BEYIS/GH	
	U.8. ARM		NEER DISTRICT, FORT V PAPS OF ENGINEERS FORT WORTH, TEXAS	VORTH	
PESIGNED UT			RAY ROBERTS LAKE	-	
		ELM	FORK TRINITY RIVER TE	XAS	
9446H 871			NKMENT, SPILLWAY		
			OUTLET WORKS		
***********			LOGS OF BORINGS	;	
			C-5,C-6 AND C-7		
SUBMITTED BY			INVITATION NO DACW 63-82-8 002		2,462
			CONTRACT NO DASW63-92-C-C	CPS	SEQUENC
ENGINEER			CRAWING NUMBER	SHEET NO	in

UNITED STATES EMBINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTOR, TEXAS

106 OF CORE BRILLING

SITE Autroy

Site of Core Devil no.

Location r. C.L. Sta. Si,750

Location r. C.L. Sta. Si,750

Livetion of Ine of Role 723,21

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2464-6-5 •	Log	CORE DRI	LLING CONTINUATION SW
SiteAubrey		ı	Hole No. C-8
70 	57-4	665•	57.1° to 111.0° SAND: dated, marcon.
<u> </u>   105	<u>::::</u>	L	

SMC#-C-2 -

SY01-C-2. \$¥9#-C-2\_ LOG CORE DRILLING CONTINUATION SE LOG CORE DRILLING CONTINUATION SH Sheet 2 of 1 Sheet 2 of 1 Site Aubrey Hole No. C-8 Hole No.\_\_\_\_\_ Site \_\_\_\_Autrey\_ 105 110 111.0 665---612,2+ 115 111.0° to 119.6° SELIE, lignitio, black-brown. 120119-01 603.60 119.6° to 129.0° SHALE, sandy, gray-black. Seams of physicic clay. 125 57.4 to 111.0 SEEDSTONE, poorly consolidated, marcon. 129.0 594.21 130 129.0° to 141.0° SANDSTONE, clayey, consolidated, yellow-gray. 125 ₹ 141.0 582.21 141.0 to 145.0 SHALE, very sandy, green. 205 145.0° to 106.0° SHELL ACCIDISTATE in matrix of green marly limestone. 210 1 - 1 155 217.0 220 160

SYDR-C-2. \$208-6-5 LOS CORE DRILLING CONTINUATION SH LOG CORE DRILLING CONTINUATION SHE Sheet\_1et &\_ TripKel. Aubrey Hole No \_\_C-5\_ Hole No \_\_C-8\_ 165 166.0° 1557.2° 70 111.0 612,20 106.0° to 180.0° LIMESTONE, fossiliferous, marly, gray. 115 111.0: to 119.6: SELIE, lignitic, black-brown. 633.60 18980.01 TEL 543.21 119.6° to 129.0° SHALE, sandy, gray-black. Seams of plaistic clay. 125 129.0 594.21 180.0: to 217.0: SHALE, compact, fossili-ferous, sandy in somes, gray-black. 129.0° to 141.0° SAMDUTCHE, clayey, consolidated, yellow-gray. 125 <u> 95</u> 750 582.21 141.0° to 145.0° SEALE, very sandy, green. 205 578.21 145.00 to 106.00 SHELL ACCIDITATE in matrix of green marly limestone. 150 210 155 217.0 50620 Bottom of hole 140 220 RECORD DRAWING-WORK AT RUILT Rŧ

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
COMPS OF ENGINEERS
FORT WORTH, TEXAS

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND
OUTLET WORKS
LOGS OF BORINGS
C-8

SUBMITTED ST

INVITATION NO DACW 63-82-8-0025 DATE MAN, FISC
CONTRACT NO DACW 63-82-C-C-FS
DAMING N.MSEA

TO ACCOMPANY FOUNDATION REPORT

Hele No. 8A2C-\$

Fort Worth District

Fort Worth Average of 8" Auger 2" Core Bbi

11. GATUR FOR EXCEPTION THOSH (FR # #24) DRILLING LOG L outhwestern Aubrey Dem Site TE MANUFACTURER & OCTIONATION ... DATE.

Failing 1500

11 Total no or over the provided bushon instructed bushon instructed bushon instructed bushon instructed bushon instructed to the provided bushon instructe Ornacine Asserts
Corps of Engineers
a note no (As assert on downs note)
(842C-9 0 R. H. Dunn 8 Dec 60 7 THICKNESS OF OVERBURDEN 4.5 N TOTAL CORE RECOVERY FOR BORING 84 6 DEPTH DRILLED INTO ROCK 5. TOTAL DEPTH OF HOLE 106.0 RECOVE SALE (Degling limit, sweet has, depth of specificating, of specific code CLASSIFICATION OF WATERIALS (Perception) ELEVATION DEPTH LEGEND \*Ground water elevation undetermined ուղում արարավում իրական արական արարական արարական արարական արարարան արարական արարական արարարարան արարարարան արա ٨ Start 2" core 4.5' to 3.9' limestone, mar-ly, hard, siliceous, massive weathered, dark red oxidized streak from 8.0' to 8.4', gray to buff В 596.01 Jar Sample Depths A- 0.0 to 3.6' B- 3.6 to 4.3 Box 75 591.61 8.9 to 12.3 clay, shaly, sand lenses thru out, weath-ered, slightly laminated, tan to gray 10 80 588.2" <u>aladantantantantahintantahantahan</u> NOTE: Base of weathering zone 86 12.3 to 96.5' shale, clayey, sandy, firm to medium hard, very fossilferrous, laminates, dark gray NOTE: Medium hard sendstone streaks at following depths: 16.7 to 16.9 24.7 to 25.3 40.0 to 40.4 43.1 to 43.3 48.0 to 48.4 55.0 (Siltstone) æ 90 97

EVATION	00PTH LEGS	140	CLAMIFICATION OF MATERIALS (Description)	S COME RECOVE	POX OR	_
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	Junianian			90	Box 4	
				85		
504.0	18:37		96.5' to 100.0 LIMESTONE sandy, hard, massive, fossifetrous, gray	100	-	-
	m mhml		100' to 106.0' SHALE, clay firm, imminated, gray		Bot 5	-
494.	5, 100.0		T. p. 106.01	-	+	4

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Mole No. QA2C-10

Initiation

Fort Worth District

We use and ever of 8" Auger 2" Core abl

II. DATUM STOCKEVATION SHOWN (FM a smill)

KSL. T COME SOL OF SERVICES (Services store of services of DRILLING LOG Aubrey Demaits MSL
L MANUFACTURER & GENERATION OF CAILLY
FRILING 1500
L TOTAL DO GROVEN. DESTURBER
BURGEN SAMPLES TAREN 3 2. Observe Assert Corps of Engineers lox 3 R. M. Dunn IS ELEVATION GROUND WATER ... ML DATE HOLE STATES
15 Dec 60
17. ELEVATION TOP OF HOLE 610.8 BrenticaL DIRELINES 7 THICKHESS OF OVERBURDER OFFTH DRILLED INTO ROCK S TOTAL COME RECOVERY FOR BORING 84 TOTAL DEPTH OF HOLE 60.0 ELEVATION CLASSIFICATION OF MATERIALS RECOVE SAMPLE REMARKS
(Draing time, motor book, dopth of meadwring, etc., if elgetteand \*Ground water elevation on 16 Dec 1960 was (8.0 Jar Sample Depths; A - 0.0' to 5.5' B - 5.5' tp 10.4' C - 10.4' tp 13.8' 9 92 C Start 2" Core 14.5' 596.31 14.5' to 25.8' clay, shaly, firm, fine sand lenses thru out, soft sandstonerstreak at 16.8, and 22.1, very hard limestone boulder at 17.6'; grey to yellow Box 4 90 88 75 585.01 25.8' to 41.8' SHALE, clsyay firm weathering stains in upper 3.0'; sandy, laminated small fossils thru out dark iz lossi 100 40 NOTE: Base of weathering at 29.0'. Line seem at 35.0' which is 0.1 th thick 95 41.8' to 43.3' SAND, clayer, firm-almost sandstons, distinct bedding, fine to medium gray 569.0 567.5' 43.3' to 60.0' SHALE, clayer, sandy firm to medium hard lime boulder at 44.8, very fossilferous from 47.0 to 510 laminated, 4' sandatone at 58.0', dark gray 100 97

550.81

T. D. 60.0'

Aubrey	Dam S	ite	witer)
3. CHILLING	AARDOV		
Corps	Of Eng	ineers	-4 mms -
R. Dun	ONILLEA		8A2C-11
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OCPTH D	11LLED 10	10 ROCE	23.6
TOTAL DI			
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	_		Start 2" core 7.0'
605.21	7.0		7.0' to 14.4' clay,
	=		sandy, firm to mediu very weathered, hori
10 .	=		fractures, yellow to
	=		
	=		
597.8"	4.4	-	14.4° to 15.8 sands medium hard, fine t
596.4*	15.8 =		grain, massave, tan
	=		
	-		15.8° to 22.5 shale,
	111		firm to medium hard, nating seams of sand
20	=		gray.
589.7'	22.5		NOTE: Base of wea
	=		24116
	-		
	Ε.		
		\	22.5' to 30.6 shale,
	1		22.5° to 30.6 shale, sandy, firm laminate marine fossils, dark
			_
581.6'	30.6		
	=		T. D. 30.6'
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NG FORM			

SUBMITTED BY
EMGINEER

TO ACCOM

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or 2 sectos
Core 8b1 SACC-11 SELET OF 1 SHEET 1.79 Fort Worth District DRILLING LOG Juthvestern Fort Worth District
to bits and type or out 8" Auger 2"
11, Dayburon ectoration emporation and ING LOG Southwestern Aubrey Den Site HSL MANUFACTURER & DELICANTION OF DAIL I WARD ACTURED S DESIGNATION OF SAIL Falling 1300 Corps of Engine Vs Falling 1500 f Engineers
(As them on double nime) 8A2C-10 8A2C-11 IL TOTAL NUMBER CORE PORES R. Dunn IL ELEVATION GROUND WATER CATELER 16 Dec 60 16 Dec 60 ML DATE HOLE 15 Dec 60 17. ELEVATION TOP OF HOLE 610.8 ELEVATION FOR MF HOLE 612,21 THICKNESS OF OVERBURDEN 7.01 14 TOTAL COME RECOVERY FOR BORNE 86 ---IE TOTAL CORE RECOVERY FOR BORING TO, BIGHATURE OF INSPECTOR TOTAL DEPTH OF HOLE 30.6 LLED MTD ROCK 60.0 RECOME SON ON SAMPLE RECOVE POST OF CLASSIFICATION OF WATERIALS REMARS
(Diffing time, water hine, depth of
mentaring, site, it significant CLASSIFICATION OF MATERIALS 0 E P T Y \*Ground water elevation on 19 Dec 60 (10') \*Ground water elevation on 16 Dec 1960 was (8.0 Jar Sample Depths A = 0.0 to 3.5' B = 3.5' to 6.5 Jar Sample Deptha; 605.2 A - 0.0' to 5.5' B - 5.5' tp 10.4' C - 10.4' tp 13.8' 7.0° to 14.4° clay, shely, s sandy, firm to medium hard, very weathered, horizontal fractures, yellow to tan C 70 Start 2" Core 14.5" 14.4° to 15.8 sandstone, medium hard, fine to medium grain, massive, tan to gray 597.81 14.5' to 25.8' clay, shaly, firm, fine send lenses thru out, soft sandstonerstreak at 16.8, and 22.1, very hard limeatone boulder at 17.6'; grey to yellow 596.41 15.8° to 22.5 shale, sandy, firm to medium hard, siter-nating seems of sand stone and shale, weathered tan to 75 30 gray. NOTE: Base of weathering 95 75 589.7 88 25.8' to 41.8' SHALE, clayey <u> Դերակասիակարիաին</u> firm weathering stains in upper 3.0°; sandy, laminated small fossils thru out dark gray 22.5° to 30.6 shale, clayey, sandy, firm laminated, few marine fossils, dark gray 100 Base of weathering at 29.0'. Line seam at 35.0' which is 0.1 th thick 581.6 T. D. 30.6 95 ENG FORM 1836 PREVIOUS EDITIONS ARE DESOLETE 41.8' to 43.3' SAMD, clayey, firm-almost sandstone, distinct bedding, fine to medium gray 43.3' to 60.0' SHALE, clayey; sandy firm to medium hard lime boulder at 44.8, vary fossilferous from 47.0 to 510 laminated, 4' sandstons at 58.0', dark gray RECORD DRAWING-WORK AS BUILT NO 100 DESCRIPTION OF REVISION U.S. ARMY ENGINEER DISTRICT, FORT WOR'TH PER-0000 07 RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT, SPILLWAY AND T. D. 60.0 **OUTLET WORKS** LOGS OF BORINGS ACVIEWED 87 8A2C-9,8A2C-10, AND 8A2C-11 INVITATION NO DACKES-82-8-0025 OATE MAR, 1962 CONTRACT NO DACW 63-97 - C- 0093 SHEET NO ENGINEER DRAWING NUMBER TO ACCOMPANY FOUNDATION REPORT

Halo No. 816C-12

Fort Worth pro lett 1 or 2 meets 1 meet 1 or 2 meets 1 meet 1 or 2 meets 1 meet 1 or 2 meets 1 meet 1 or 2 meets 1 meets 1 or 2 me DRILLING LOG | Southwestern Aubrey Dan Site No. 1 STORESTORE TO SERVICE Corra of Engineers 826C-12 Schoonover 14 TOTAL NUMBER CORE BOXES 7 2 lov 71 ---Burner Durang 17 ELEVATION TOP OF WOLE 13.7 37.3 51.0 \* \* DEPTH DRILLED INTO ROCK 1014L DEFT - OF -OLE REMARS
(Deling time, motor loca, dopth of meastering, ath., of agents, and -----0.01 to 13.71 1. After completion, hole was briled to 43.5% Same level after 24 hours. 5112 - - -A 0.0 to 10.0 - fire to necture grained, trace clay, politics compact, ali. moist, red. в 2. Jars:
A. 0.0 to 4.7
B. 4.7 to 6.4
C. 6.4 to 6.4
D. 8.4 to 10.0
E. 10.0 to 13.7 10.0 to 13.7 - fire to podium grained, trace of fine-grained, vell-rounded gravel (-5%), nedium compact to dorse, alli-moist, red. Ĉ 7. Cartons:
1. 14.2 to 15.1
2. 18.3 to 19.3
3. 23.6 to 24.5
4. 29.0 to 30.0
5. 35.7 to 36.7
6. 42.9 to 43.9
7. 45.3 to 49.1 E --- Refusal w/auger @ 13.7' - ---13.71 to 26.41 LD397012 - - -0.6 1 13.7 to 23.3 - shaler, highly fossillf., n. hard, thick-bedded, unfractured and unjointed, sll. stair to 22.01, gray. 4. 8" casing set to 14.3". 18.7 Jegi 5. Prilling methods: 1. 0.0 to 13.7 - 8" 23.3 to 26.4 - very he dismond bit used in ر روه 2 this section. diamond 4. 25.4 to 51.0 -carboloy. \$32.3 \$12.3 \$13.3 2.2 25.4° to 51.0° 3 SALS, non-calc., n. hard, mo visible bedding, un-jointed and unfractured, G. 1.2 occas. siltstone concretion, black. =14 <u>հայհավումակառատիումասիավորվումարկումարի</u> G. 4 34: G. 0.3 5 381 0.6 432 6 G 0.7 47.2 L 7 08 T.D. - 51.0' -5/0

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DRILL	ING LO	6	nnon Southvestern	mstace.	rt vor	t				
rsscare r erdul	Aubrey Dan Site No. 1									
Sta.	Sta. 13/470 - centerlins									
CO HOLE NO	AGENCY	Enrin	1075	1	Ell	1				
T HOLE TO	140000		4 mi* 60C-13	" 1016	10,000	ŝ				
S. BAUL OF	CAILLER			10 1014	A 1104 6#	-				
& DIRECTIO				10 0416		Ě				
(32 v 1 m 1 m					AT104 TO	-				
) THICKNES				10 707	L CO46 4					
. TOTAL OF			52,2 95,2	19 5164	172	10				
ELEVATION	,			u	* 5500	•				
•	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		(Ventripried)		Z.,,,,	Ĺ				
	=		*							
	=		0.01 to 24.61							
l I	=	(	CIYI			۲				
	=		0.0 to 6.6 = mm	-cale.						
1	=		0.0 to 6.6 - ron rolst, stiff t	o hard	[	-				
1	=		scattered root black.	1622		١				
1	=		†			ŀ				
l	ΙΞ		6.6 to 12.6 - no noint, sli. sa	n-oale	<b>'</b> '	1				
	=	]	moint, sli. se hard scatter	d root	lets,	ŀ				
l	10.0	}	dk. brown.							
1	=		12.6 to 24.6 - 6 hard to 22.61 from 22.6 to	alc.,	eardy,	ŀ				
1	=		from 22.6 to	24.6.						
1	=		moist, tan.	,	l	r				
1	<u>۔</u> ا	]								
1	1 =	1			1	٢				
ļ	] =	]	24,61 to 28,61			L				
1	=	}	SIND all alexan	D00-	1,700	٢				
1	-	1	SUD, sli. clayer, moist, medium of	mpact,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Ŀ				
	L .	3	tan.	•	Ì	٢				
1	20.0	1	1		1	L				
1	3	1	28,61 to 39,61			Γ				
1	-	1	}		1	1				
1	1 =	1	CLAY, sandy, sli. moisture increas	oalc.,	ř	٦				
	-	1	cepth, hardness	decres:	ing	٤				
1	=	1	with depth, satu from 36.61, tan.	rated	1	٢				
1	-	1	1.02 50,00, 000.		1	L				
1	] =	1 \	D-133-4 4-4	·	J,	٦				
1	-	3	- Drilled into sand	* = = A Bras	ľ	Ŀ				
1	30.0	1	Start 8" auger 6	39.61		ſ				
1	125.00	1	1			1				
1	] =	1	39.61 to 43.01	_		ľ				
	-	1	GRAVEL, fine to be	dius		Ŀ				
	:	1	grained, sandy, to bearing, loose to	ater	Ţ	Γ				
	-	3	dense.	, ceut	Ť	Ŀ				
1	:	‡			1	ľ				
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1	1 :	1	1		1	1				
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60C-13 7 Fort Worth 'n w Sirg and type or Sir 8" SURET, 6" C IE MENUFACTURER & DESIGNATION OF DRILL 10 Tetline 1500

13 Total Co Oven. Servere 
Evente Dancies Texten 1 <u>2</u> <u>~13</u> to Tatal number coer soits 9

In Extration depund eater pass
to pair mote 18 Kov 71 : 27 Nov 71 DES PROMIVERS CT ELEVATION TOP OF HOLE 559.39 is total cost accorder ton somise see FREATCS & REMARKS
(Disting time, over too, doub of monoring, oth, if experienced SCORE POLOT CATION OF MATERIALS to 24.61 1. After completion, brie vas bailed to 90.01. Later level will be sont in at later date.

2. Jar:
A. 0.0 to 2.6

3. Denison samples:
1. 2.6 to 4.6
2. 4.6 to 6.6
3. 6.6 to 8.6
4. 8.6 to 12.6
6. 12.6 to 14.6
7. 14.6 to 16.6
8. 16.6 to 18.6
9. 18.6 to 22.6
11. 22.5 to 24.6
12. 24.6 to 26.6
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14. 23.6 to 34.6
15. 30.6 to 32.6
16. 32.6 to 34.6
17. 34.6 to 36.6
18. 36.6 to 38.6
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17. 34.6 to 36.6
18. 36.6 to 38.6
19. 38.6 to 39.6
10. 32.6 to 34.6
11. 34.6 to 36.6
12. 34.6 to 36.6
13. 36.5 to 38.6
14. 23.6 to 34.6
15. 36.6 to 38.6
16. 36.7 to 47.6
2. 34.3 to 34.8
3. 99.2 to 60.2
4. 65.7 to 66.7
5. 71.5 to 72.5
6. 76.9 to 77.9
7. 85.4 to 86.4
8. 93.4 to 94.4 A to 6,6 = mon-calc.
oist, stiff to hard
cattered rootlets,
leck. ا 4.5 2.5 to 12.6 - mon-calc,
oist, sli. sandy,
ani ard, scattered roctiets,
2.6 L. brown.
4.6 6 to 24.6 - calc., sandy,
8.6 ard to 22.6; stiff
10.4 rcm 22.6 to 24.6,
12.2 clast, tan.
14.6
16.6
18.6 3.5 4.5 4:3 £.5 2,5 10 2.75 12 brt.

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68. Control 15 13 16 , ce a 5. 8" casing set to 42 17, 711: 0.0 2.6 d. 6. Drilling methods:
1. 0.0 to 2.6 - suggr
2. 2.6 to 39.6 - 68
d.b. 18 10 13

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LEVATION	0EP1H	C6E×0	CLACUP DATION OF MATERIALS	1 COAR	001 00 1010 10	REMARKS (Evillang speed, major boss, depails of montrolling, while H elipsisteesing)
<u> </u>		<u>.</u>			"	meanand etc. N elfolicant
	E		Augered into primary no 0 43.0' Set casing to cleaned out, and started 6"	terial		3. 39.6 to 45.0 - aur 4. 45.0 to 95.2 - 6"
	1		9 43.01 - Set casing to	۲5۱,	i	carboloy.
	#_		core 45.01	Ì		
	3	abla		ŀ		•
- 1	E	ΛI	45.01 to 93.41	450		
1	=======================================		45.01 to 97.41			
i	1		SRALE, non-cole, to sli.	. 1		MOTE: Actual coro loss
1	=	<u>-0</u>	chic. with depth, m. has black to gray.	07		from 45.0' to 53.2' vas 14.6%. Fole tap
	-1		uzam w graya	l	1 1	for depth at 53,21.
	#	•	15.0 1. 50.0 11.5-1-	<u>που</u>		loss possibly occure
1	0.0-	_	45.0 to 57.2 - thin to medium bedded, with	L	ļ l	from 50.5 to 52.0, drilling was very ro
	∃:		core seperating at	05		in this zone.
			sand seams listed below.	ן ניין		53.2 to 95.2 - core
	📑		pe104*	53 2		recovery was 98%
		=	57.2 to 93.4 - core res	red	2	
- 1	3	.12	from bbil. as conting	out	٠ ا	
l		****	200772	09		
			Sandstone, fine-grained,			
	3	_	Friable, laminated, C following denths:	57.2		
	7		friable, laminated, O following depths: 45.0 to 45.7, 45.6 (0 51.3 to 52.3, 53.3 (0 54.2 (0.1), 55.4 (0.1)	1)	3	
- 1	∃-		51.3 to 52.3, 53.3 (0	14)F.	Ŭ	
- 1	∞.∘-∃:	=[의	55.6 (0.1)	09		
- 1	∃≘	$\equiv$		612		
		365	6 58.81 = 0.05 sess of	-84-3-		
	퓜	<i>.</i> :,	broken shells.	<i>L</i> .	1.	
ŀ	.B.	$\equiv$	61.2 to 61.7 - zone of	~~-	H	*** l'arver bed - s
l	<u> </u>	픠	numerous broken shel	45.2		6DC-14 at 56.2 to 56.8
	#	-떼				
- 1	3:	⋍		L		
	===	=	From 62.8 to 93.4 -	11		
l	7		were able manuals	100	5	
	3-	$\dashv$	defined, friable sand	s Sobber		
ľ	70. <del>0</del> _	_	poem.	6.		
	3			0.4		<b> </b>
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	#:			73.2		
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	∃:			1	7	ļ.
1	_=		93.41 to 95.21	03		ļ:
1	#=	퓌		ا ۔ دہ		
1		ΠB	LDESTONE, shaloy, sli. nodular, forsilif., ha	6.00		eee 6DC-14 at 88.4
İ	正	ΥĎ	gray.	25.2	ł	ON-TV #£ 90'7.
- 1	==		-			E
- 1	$\exists$	1				E
	$\neg$	- 1	T.D 95.21 -			Ŀ
- 1				9		
	4					<u> </u>

STAN DE

TO AC

	ELEVATION		resexo	CLASSIFICATION OF MATERIALS (December)	S COME	901 04 100 C	ngmings (Deling ima, outer tree, depth of westering, other H expeller one	
		7 11111	•	Augered into primary no 0 43.0' Set casing to cleaned out, and started 6"	terial	•	3. 39.6 to 15.0 - sur 1. 15.0 to 95.2 - 6" carboloy.	بابيطا
		1111111	$\boxtimes$	core © 45.0°	ls o			
		limit		SHILE, non-calc. to eli- calc. with depth, n. har black to gray.	a,L	1	NOTE: Actual core loss from 45.0' to 53.2' was 14.6%. Fole tap for depth at 53.2'.	111111
		Q.0.		45.0 to 57.2 - thin to medium bedded, with core separating at	400 L e.5		Ins possibly occure from 50.5 to 52.0, drilling was very ro in this zone.	
		undu		sand seems listed below.  57.2 to 93.4 - core rem from bbil. as contin- stalks	53.2	2	53.2 to 95.2 - core recovery was 98%	
				A. 1.1.4. Al	09			linidi.
		<b>∞.</b> ₀.	3	Sanstone, 11ne-grained, frishle, laminted, G following depths: 45.0 to 45.7, 45.6 (0 51.3 to 52.3, 53.3 (0 54.2 (0.1), 55.4 (0.1 55.6 (0.1)	1) 1) 1)6.	3		landan dan barbar
				6 58.81 - 0.05 seem of broken shells. 61.2 to 61.7 - zone of	4	14	*** l'arver bed - s	Ш
•				mmerous broken shel	653 L		6DC-14 at 56.2 to 56.8	
				From 62.8 to 93.4 - occas. thin, poorly- defined, friable sand	ı	5		
		70.0	5	<del></del>	G. 04			
•					13:2 L a1	6		=======================================
			===		772 G	7		
	<b> </b>				81.2			
					L. 01 852	8		=======================================
					l.	_		=
					80 z.	9		Ξ
		1	- - - - - - - - - - - - - - - - - - -	93.4' to 95.2' LIMESTONS, shaley, sli. modular, fossilif., ha	63		*** Yarker bod	=
			ĽĔ	gray.	95.2		see 6DC-14 at 88.4	
'n				T.D 95.21 -				

RECORF DRAWLN - WINK AL RUIL

SYM DO NO	ACTON	34.6	DESCRIPTION OF HEAS, N							
	U.S. ARMY ENGINEER DISTRICT, FORT WORTH  CORPS OF ENGINEERS FORT WORTH, TEXAS									
01310m20 8*		F	RAY ROBERTS LAKE							
		ELM	FORK TRINITY RIVER TEXAS							
\$0449 87		EMBAN	KMENT, SPILLWAY AND							
			OUTLET WORKS							
*{*! {*!} **			LOGS OF BORINGS							
	8A6C-12 AND 6 DC-13									
5,84 ** (2 67			NUTATION 4. 020 NOS-82 8-0025 24 E MAR.1482							
7.7.6-			CHANGE NO CACHESTER C GG 3 TEL TOTAL ENDE							

TO ACCOMPANY FOUNDATION REPORT

Hale He. 600-14 Fort Worth or 3 meets of 3 meets or 3 meets Southwestern DRILLING LOG \*\*\*\*\* Ambrey Dem Site No. 1 Pailing 1500 Corns of Engineers 60C-24 14 TOTAL HUMBER COPE BOIES ------Suits processor of the NO DATE HOLE 18 F. Cot. 71 1 Oct. 71 Tetatitat Minteinta. \_ 000 /\*\*\*\*\*\* 45.3 44.7 90.0 THICKNESS OF OVERBURDER 99.0% E EEPIN CHILLED INTO MOCK -----(Desting time, meter loss, depth of measuring, one, if expersions ACONE BOY ON RECOVE SAMPLE CLASSIFICATION OF WATER · ( / ELEVATION DEPTH LEGEN .... កក្រាកក្រការក្ការក្រការក្ A 0.01 to 38.61 After completion, was bailed to 89.0° casin; was pulled, hour water check — CLAY - - -1 0.0 to 18.6 - calc., moist, hard, scattered root-lets to 8.61, tan. 2. Jars: A. 0.0 to 2.6 2 3 Denison causi
1. 2.6 to 4.6
2. 4.6 to 6.6
3. 6.6 to 10.6
5. 10.6 to 12.6
6. 12.6 to 11.6
7. 14.6 to 16.6
8. 16.6 to 18.6
9. 18.6 to 28.6
10. 22.6 to 22.6
11. 22.6 to 25.6
12. 23.6 to 50.6
14. 30.6 to 38.6
15. 32.6 to 38.6
17. 36.6 to 38.6 3. 18.6 to 33.6 - calc., sandy, stiff, with hardness decreasing with depth, poist to very moist, tan. 4 5 6 7 8 1072: 26.6 to 28.6 -attempted 3 times to recover sample. No 9 TO COTTO 10 4. Penetroneter tests on bottom of cans: 11 Cans 1 thru 7 - 4.5 8. 2.75 9. 1.75 10. 2.5 11. 2.0 12. 1.5 13. 1.25 14. 1.0 15. 2.0 16. 1.0 17. E.A. 12 13 14 All core was wrapped in aluminum foll and placed in cartons. Deptis shown on p. 2 15 16 6. 8\* casing set to 46.01. 17

ELEVATION	0671#	LECTHO	CLASSIFICATION OF WATERIALS	\$ 600 E
•	-		1000000	iar .
		$ \bigvee $	38.61 to, 44.21	_
	اً ا	$ \cdot $	SAID and GRAVEL, ( record only frace in bottom of can 17.), logged by drill	49
	=		action and cutting	Chan C
			Drilled into primary	117.7
	=		material @ 44.21, set casi to 46.01, cleaned out, and started b core @ 47.21 -	d.
			started 6" core # 17.2"	512
			47.21 to 88.41	G.
	ا ا		SPAIE, ali. to non-cale., sandy, hard (pen. # 4.5) thin to medium bedded to	
Ì	]		thin to modium bedded to 75.1', thick-bedded from 75.1 to 88.4, unjointed	55.2
			75.1 to 88.4, unjointed and unfractured, unveate ed, gray.	և. Ծ.Տ
				59.Ze
	=		Sedimentery features: Sendstone beds at the following	G
	] =		deptasi	
	] =		47.5 to 47.8, 48.0 to 48 48.6 to 48.9, 49.4 to 49 50.7 to 51.1, 57.3 to 57	16. 16.
l	]		59.1 to 59.3, 62.8 to 62 64.8 to 65.0, 65.6 to 65	.b.n.3 B,
			50.7 to 50.4, 57.4 to 57.5 to 57.5 to 57.5 to 57.5 to 57.5 to 57.5 to 57.5 to 57.6 to 55.6 to 55.6 to 55.6 to 55.7 to 57.5 to 77.3 to 77.5, 77.0 to 77.1, 70.7 to 77.5, 77.1 to 78.1 to 78.1 to 78.1 to 78.1 to 58.1 t	167.2.
	7		Adla sore and commit	1. 0.5
		三	crushed with moderate amount of finger pressure	
ĺ	-		56.2 to 56.8 - mighly for section, very calc. For marker bed - see 6DC-1	::::::::::::::::::::::::::::::::::::::
	-	$\equiv$		0.4 75:2
			Structural features:	1.
				0.0
		巨		79.2
		闄	88.4' to 90.0'	l. 0.3
		量	LHESTONS, sli. shaly, modular, fossilif.,	83.2
	-		hard, gray.	l.,
	-	量		812
1	-	慧		L.
l		詽	7.D 90.01 -	900
		∄		
1	_			
1	-	=======================================		1
	-	3		-
	-	3		
	-	=	Core was seperated at the	P 1
	-	‡	51.0, 51.1, 51.4, 51.6, 59.2, 60.1, 61.2, 62.0,	28, 67.
	-	3	47.5, 47.9, 48.3, 49.0, 451.0, 51.0, 51.1, 51.4, 51.6, 59.2, 60.1, 61.2, 62.0, 65.0, 65.0, 65.0, 65.7, 67.2, 71.5, 71.8, 72.9, 74.6, was removed as continuou	74.9, 75.
		∄、	100 100 100 000 000 000	

REMARKS
(Diffing time, went book, depth of weatherms, we, if organization) ACOUNT POR OF CLASSIFICATION OF MATERIALS ELEVATIO ....... 1. 47.2 to 48.0
2. 48.0 to 47.0
3. 49.0 to 50.0
4. 50.0 to 50.6
5. 50.6 to 51.6
6. 51.6 to 52.6
7. 52.6 to 53.6
8. 53.5 to 53.5
10. 55.5 to 57.3
11. 56.5 to 57.3
12. 77.3 to 59.9
13. 68.0 to 61.0
16. 61.0 to 61.0
17. 62.9 to 63.9
17. 63.9 to 65.0
22. 69.1 to 69.9
17. 61.0 to 66.0
11. 66.0 to 66.0
12. 69.0 to 66.0
12. 69.0 to 69.9
12. 67.2 to 69.1
121. 67.1 to 77.1
122. 77.1 to 76.1
131. 76.1 to 77.1
131. 76.1 to 77.1
132. 77.1 to 76.1
133. 78.1 to 79.1
14. 79.1 to 80.0
15. 80.0 to 82.0
17. 82.0 to 82.8
18. 82.8 to 83.8
19. 82.8 to 83.8
10. 84.8 to 85.8
11. 85.8 to 85.8
12. 87.4 to 88.2
13.8 to 88.8
14. 85.8 to 88.8
15. 88.9 to 89.9
15. 88.9 to 89.9 to, 44,21 SAID and GRAVEL, ( recovered only trace in bottom of can 17.), logged by drill action and cuttings. 11/2 H1 2 material @ 44,2', set casted.
to 46,0'; cleaned out, and granted 6° core @ 47,2' -512 47.21 to 88.41 G. SPAIE, ali. to non-calc., o.r. sandy, hard (you. # 4.5) thin to notion bedded to 252. Thin to notion bedded from 75.11, thick-bodded from 75.11 to 88.4, unjointed | and unffactured, unvesting ed, gray. 59.3 Sedimentary feetures: Sandatone beds at the following depths: 47.5 to 47.8, 48.0 to 48. 43.2 48.6 to 48.9, 49.4 to 49.5, 50.7 to 51.1, 57.3 to 57.44 59.1 to 59.3, 62.8 to 62.9, 3 64.8 to 65.0, 65.6 to 65.8, 67.4 to 67.6, 70.8 to 70.71.3 to 71.5, 73.0 to 71.7 1.1 to 71.5, 73.0 to 71.7 1.1 to 71.9, 79.1 to 19.2, 61.2 to 81.4. Most beds were soft and crumbly, crushed with moderate arount of finger pressure 74.2 56.2 to 56.8 - highly fossillf.
section, very calc. Fossible
marker bed - see 60C-15 The following depths were not curtoned: 54.6 to 54.8, 62.8 to 62.9, 66.9 to 67.2, 72, to 73.2. որը երելու որ արարարարարություն արարարարարարար 75.2 Structural features: lione 0.0 79.2 L. 88.41 to 90.01 0.3 LHESTOIE, sli. shely, nodular, fossilif., hard, gray. 83.2. L. 0.} 81.2 L. 0.0 T.D. - 90.01 -900 Core was seperated at the idllowing 47.5, 47.9, 40.3, 49., 49.1, 20.0, 50.7, 50.9, 51.0, 51.1, 51.4, 51.6, 5314, 54.8, 55.6, 57.3, 59.2, 60.1, 61.2, 62.0, 62.8, 63.4, 63.9, 64.8, 65.0, 65.0, 65.0, 66.9, 67.2, 6715, 70.3, 70.8, 71.3, 71.5, 41.7, 72.9, 74.6, 74.9, 75.1, 84.8 - - Note that core was removed as continuous talks from 75.1.

							Mete No. 600-15	
DRILLING LOG Southwestern					INSTALLATION			
Autrey Dan Site Fo. 1					II DATOR YOU ECTARDER INDER SAR WHILL CIEDOLON C'LE			
I, LOCATION (Concernors) or Fraction)					AND HANDERS OF STANATION OF DAILL			
Outed of Dulibeach purply to season as according to the control of Dulibeach provides version of Dulibeach					Patting 1500			
A Mark of Delicita					IS ELEVATION CREUND PATER BOND			
Schoonover					IS DATE HOLE 27 Sept. 71 : 22 Sept. 71			
Granicas Ginesines					L. SLEVATION TOP OF HOLE 558,48			
P THICKNESS OF OVEROUNDEN 38,7					10 TOTAL COME MECOVERY MORE SOMING THE ONLY TO SOME OF THE			
POTAL DE		1	61.2		1600	12 00	(Degrad see, was then depth of supplied, see, of september	
ELEVATION	DEPTH	receno	CLAMIFICATION OF MATERIA (Description)	$\mathcal{U}$ .	"sya,	****		
	13		0.01 to 38.71			A	1. After completion, chai	
} .	=			mist t	ļ		bailed to 55.00 Water	
	ا ا	1	GLAY, calc., sli. : 6.7', with gradu increase with dep	i mois	ture rd	1	check after 24 hrs. vis	
1			to 8.71 with str	ength			l E	
1	=		( Note penetrone in remarks col	tor to:	te	2	2. Jares A. 0.0 to 2.7	
}	]	j	to tan.			3	Jar samples taken from Denison bb'l shoe except	
1	=						where noted by an	
)	10.0	1				14		
1	8,4	]			į	-	2. Denison cans. — Denth Pene, test	
	1 3					5-	1. 2.7 - 4.7 4.5 = 2: 4.7 - 6.7 4.25 = 3. 6.7 - 8.7 4.5 =	
1	=	1 1				13	3. 6.7 - 8.7 4.5 4. 8.7 - 10.7 4.25	
		1			1	-	5. 10.7 - 12.7	
	1 3	] [				17	7. 14.7 - 16.7 8. 16.7 - 18.7	
	-	1			}	8	9. 16.7 - 20.7	
	2	1			l	-	11. 22.7 - 24.7 3.0	
1	1 .	- 1			1	9	13. 26.7 - 28.7	
ĺ	=				1	10	14. 28.7 - 30.7 2.75 - +15. 30.7 - 32.7 1.75 - 16. 32.7 - 34.7 1.75 -	
İ	1				١		16. 32.7 - 34.7 1.75	
1		1			1	u	Note: Can A8 - sample alipped out on initial	
	] =				1	1,2	retrieve and was re-	
	1				1	12	Can #15 - poor	
	-	3				13	recovery, Inst 1,0	
	20.0	∄ 1	34.71 to 38.71	- 100	1	1	4. Cartons: -	
Ì		7	recovery except	Cor	1	:4	2. 47.5 to 48.5 3. 52.2 to 53.2	
	-	3	Skod from 38,2	to 38.	7[	15	4. 56.8 to 57.7	
1	1_	∄	loose, trace cla		1		5. 50.6 to 59.5	
1	1	<u></u>	Drilled into praterial 6 38.71,	SOL CA	3122	16	5. 8" casing set to ω[1'.	
	-	∄⋉	to AO.O', cleaned started b" core @	10.71	-[	X	1 F	
	1 -	*>	1		1		6. Drilling methods: 1. 0.0 to 2.7 - 8° sucre 2. 2.7 to 40.7 - d. byll.	
1	1 ~	≯	<b>\</b>				2. 2.7 to 10.7 - d. 541. 3. 40.7 to 61.2 - 6" 65"	
-	┤╩	二	1		Ao:	1 40.	1 7	
1	1 :	丰	40.7' to 61.2'				E	
1		讍	SPAIR, sli. to n	no 4 4	:.) :5).	1.	Structural features:	
	1 -		nedium to thin- unjointed and u	bedded,		. L'	In the uppor loft, core	
1	1.	≣	ed (except when	e pote		-	dip (approx, 50),	
}			3	-, •		10	0.21 fracture with poorly	
	-		3	, more as a		12	formed slickensides at 56.41.	
		三三			.].			
1	`	$\equiv$	Sendstone at the f	uliov1	Mg 710:	2	1	
	.	書	42.6 to 43.3 - 1	eminet	ed.	j	=	
		<b>温</b>	= crusbly.		53	과 3	·	
l	.	≣	43.3 to 44.0 - a concretions.		- 1	_	_  E	
ł	.	3=	-  53.2 to 53.4 -	lemine Cissi	tet,		E	
-		量	shaly, sli. 55.0 to 56.1 - u shaly, sli.	lemine fizsi	to),57 101		[	
	1	4=	3 48.5 to 49.1 - b	bhly f		e.   4	·	
		旦	(broken shell) possible meri	), cal	c.	_ J	- See 600-14, 56.2 to 5	
}		-}≥≤	T.D 61.21		۲۱.	2 3	7 - 6	
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THOU I				Hele He 6DC-15	
Smithwestern	IMSTAL	ort k	rth	00 2 Section	Į
ro. 1	H DAY	AND TYPE	EVATIO	6" surer, 6" d.b., 6"	'n
·*·		PACTUAL	A S OES	SHATION OF DRILL	
neers	13 707	Pat	ling l	I DISTURBED   UNDISTURBED	1
: 6DC=15		AL HUMAC			l
		/A 1104 6	10040 4	TER 0000	l
BES, 7000 VEAT.	16 DAT	E HOLE		1 Sept. 71 24 Sept. 71	
		ATION TO		558.48	
	10.16	** CO4E	778	v pon bonina 400% i	l
CLASSIFICATION OF MATERIAL	7	) COAR	PAR CT		1
(Description)	<u>U.</u>	CAY.	Hộ .	(Dritting tion, mater box, depth of meanwring, ore, if eignificing	L
0.01 to 38.71			A	1. After completion, c was pulled, and hole beiled to 55.0°. Wat	Ę
CLAY, calc., sli. m 6.71, with gradual increase with dep	oist t L mois th. he	o ture rd	,	bailed to 55.0%. Wat check after 24 hrs. v 24.0%.	11.13
to 5.7° with strend decreasing with de ( Note penetrone to	pth		2	2. Jare:	E
in remarks column to tan.	≃n), t	TOWN	3	A. 0.0 to 2.7  Jar samples taken fro Denison bb'l shoe exc	1111
			1,	Where noted by an asterisk.	E
			5	3. Denison cars.  Deuth Pere, t	E
			<u> </u>	1. 2.7 - 4.7 4.5 2. 4.7 - 6.7 4.25 3. 6.7 - 8.7 4.5	E
			4	L. 8.7 - 10.7 L.25 5. 10.7 - 12.7 5. 12.7 - 12.7	E
			7 S	7. 14.7 - 16.7 3.75	E
				9. 18.7 - 20.7 = 10. 20.7 = 21.7 = 21.7 3.0	Ē
			9	12. 22.7 - 25.7	Ε
			10	14. 28.7 - 30.7 2.75 15. 30.7 - 32.7 1.75 16. 32.7 - 34.7 1.75	E
			ч	Note: Can #8 - sample slipped out on init	
			12	retrieve and was re covered on record attempt.	
			13	Can #15 - poor recovery. Lost 1.0	E
34.7' to 38.7' - recovery except (o	r		14	4. Cartons: 1. 41.1 to 41.9 2. 47.5 to 48.5	
s fine to nod. gra Sand from 38.2 to loose, trace clay,	38.7		15	3. 52.2 to 53.2 4. 56.8 to 57.7 5. 58.6 to 59.5	
Drilled into printerial # 38.71, se	t cas	ing:	16	5. 8" casing set to 40.	11:
material @ 38.7°, se to 40.0°, cleaned ou started b" core @ 40	.,		$\nabla$		Ш
			$\langle \cdot \rangle$	6. Drilling methods: 1. 0.0 to 2.7 - 8" au 2. 2.7 to 10.7 - d. bi	-
			X	2. 2.7 to 40.7 - d. b.	'n
	-			3. 40.7 to 61.2 - 6"	16.
40.71 to 61.21		40.7	40.7		E
					Ε
SPAIE, sli. to non- sandy, hard (pen.	4 4.5		ı	Structural featuress	E
medium to thin-bed unjointed and unfo	asa,		'	In the upper 10ft., core	E
ed (except where n	oted)	AS.Z		seems to have a slight dip (approx. 5°).	E
unwathered, gray.					Ē
Sedimentary feature	51		L	0.2' fracture with poorl' formed slickensides at 56.1'.	
Sandatone at the follower			L		E
dopthes		49.2	-	:	1111
42.6 to 43.3 = land chalv, e15, final crambly.	le,	<u> 53.2</u>	ĵ		F
43.3 to 44.0 - scat concretions. 53.2 to 53.4 - lan					E
shely, sli. fi	10110	ا وا			Ė
shaly, sli. fi 55.0 to 56.1 - lam shaly, sli. fi	inste ssile	<b>37</b> 2.	۱.		Ē
48.5 to 49.1 - highl		1	}-		F
(broken shells),	œlc.				E
possible marker	varo.	61.7	3	- See 60C-14, 56.2 to 5	Ε
1000 - 0104	ļ		I		F

RECORF DRAWING SUPPLY AL PUTLE

_!!					
-					
STW DC NO	ACTION	DATE	DESCRIPTIO	N OF REVISION	
	U.S. ARM	COF	NEER DIBTRICT, FORT RPB OF ENGINEERS FORT WORTH, TEXAS	r worth	
#E3100C0 07		F	RAY ROBERTS LA	KE	
		ELM	FORK TRINITY RIVER.	TEXAS	
84 Lea 87		EMBAN	KMENT, SPILLWA	Y AND	
			OUTLET WORKS	3	
4212060 575		- 1	LOGS OF BORIN		
			DC-14 AND 6 DC		
SUBMITTED BY	·		INVITATION NO DACWES-82-8	CO25 DATE MA	K,1982
=====			CONTRACT NO CACWES-52-C	-6183	SEDJENCE
ENGINEER			DRAWING NUMBER	SAEET 40	1 14

Holo Ho. GDC - /G DRILLING LOC-ME TES 2 ACEPE I DAM MA . . . Comments of the contract हुनकाल----EVANS 1500 1 Service of the serv 1415 31 ET 1215 -- - - 636 = 18 -G. SCHOOL OVER tuccection averaged 350 ESPEN DAILLED INTO META 120 TOTAL DEPTH OF HOLE 50 6 --166. 155E REWARTS
(Dulling your water local depth of meathering others) T. DRILLING:

0° FLOWT ANGER:

0° FLOWT ANGER:

0° FLOWT ANGER:

1° DENISON:

2.6' - 32.6'

NOTE: SAMPLES BEOWNE DISTINGED AT

24.6' - 32.6' AT

24.6' - 32.6' AT

25.6' - 37.6' AT

26.6' - 37.6' AT

26.6' - 37.6' AT

26.6' - 37.6' AT

26.6' - 37.6' AT

26.6' - 37.6' AT

26.6' - 37.6' AT

26.6' - 41.0'

CLEDIED OUT WITH

10° ANGER & SET

CLEDIED OUT WITH

8° ANGER TO 42.0'

6' CAMB BACKEL:

42.0' - 50.0'

T. COMMERCE SO.0'

10° ANGER SO.0'

10° ANGER SO.0'

10° ANGER SO.0'

10° ANGER SO.0' 559.2600 CLEY: SILTY, SLI MOIST: WARD, ROOT SONG; DICK GOOD A SO'S TO 19 6'S

CLES TO THE STATE

WE CALL, NODVES, WORSHIE

WATTER, MOIST; NARD; BROW 26.0) 46 (4.50) C. 6 6 (4.50) 8.6 18.4 (4.51) (4.5) 12.6 (4.5) (4.5) II. SAMPLES:
| 0.6 | II. SAMPLES:
| 0.6 | II. SAMPLES:
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| 0.7 | JAPA 0.0 0 - 2
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0.8 1.6° 4.6° 6.6° 8.6° D: B.C'		

F: 10.6'

F: 12.6'

H: 16.6'

H: 16.6'

H: 20.6'

K: 22.6'

M: 30.6' - 32.6'

M: 32.6' - 37.0'

0: 38.0' - 40.5'

2: 4.6' - 6.6'

3: 6.6' - 8.6'

4: 8.6' - 12.6'

6: 12.6' - 12.6'

7: 14.6' - 12.6'

8: 16.6' - 18.6'

9: 16.6' - 18.6'

9: 16.6' - 18.6'

10: 20.6' - 22.6'

10: 20.6' - 22.6'

10: 20.6' - 22.6'

10: 20.6' - 22.6'

10: 20.6' - 23.6'

C-1: 45.0' - 45.0'

C-2: 45.0' - 6.0 196' TO 286' TO CLAY! SAIL SILTY WAY COLC. NODULES; MOIST, V, STIRA; BROWN TO GRAY BROWN K 22.5 (2.5) . . L 29 ( T TO 32 " CLAY; WITTRICE OF SILT E FINE SAND; MOIST; L. STIFF, BROWN-TAN Μ 37.6' TO 37. 32 6 C-2: 49.0 - 5.0 TII. WOYER LEVEL:

370 BONNE BAILED TO BLE

WISH & K. SEPT. 71 & CHECKED

38.0 WETER 24 HOURS, 52.66 38.0 SOND CLAYER, W SCAT CLAYER,

519.66 400 ST SAND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 SOND TO A 10.5 TO WATER LEVEL AT 240 0 IN DEPTH OF WEATH MAT'L WEATH TO 38.0 40. P I. MISC POCKET PENETROMETER. PENDINGS ARE IN COLUMN 10.5' TO 50.0' TD. SHOLE: ESS. UNWEATH W/ D: 5.2 1 RISE - 25/44 - E. 55. UNWERTH; WI - 5.40 LANDATIONS; WI SCAT. - 5.5. CONCARTIONS, E. 055.; - 5Li. MOIST; SOET(POCECLAS) - BLUE GRAY F. ALSO TAR SAMPLES WERE TEXAN FROM DENIS & SHORE 410 17,2 D:2.8 C:2.8 2 50.0 : \* . T.D. 50.0'

5=0			v:6:04	- ITAL	Art.		Hele He.
740/861	LING LO	s Site	Southwestern	Tott Worth  M Mit Mayres of Bit Bit Jucap. 6" It between elevation hound fam & Mill			
C. COCATION	(Come,	# 01 C4	1.05 1	1			
I DAILLING	AGENCY DEFS O	f Engli	wers	railing 1500			
			60C-17	Svectalances Traces 1			
		Schoox	ver	10 TOT	IL NOTE	OVNO WA	124
(Zreen				16 DAT		17	Sept. 71 3
				17 ELE	V42100 TC	COVER	FOP-BORING 1
9. TOTAL D			50.0	19 Suga	Ture	XC	entur 1
ELEVATION	02778	LEGEND	CLASSIFICATION OF MATERI (Presspring)	"//	Store Store	\$25.50 \$2	(Delling tons, union to the proceduring, oth. 11
	-		0.01 to 5.51	-6/-	<u>.</u>		0000,
]	=	]				1/	1, After cos
1	] =	1	SAND, fine-grained, hard, sli. moist,	prove			45.0' with pulled. 24
						den	check
	=		5.51 to 22.01			Ci.	Ç
	] =		CLAY, sandy, non-cal moist, hard, nottle	c., a	<u>.</u>	2	2. Jar: 1 A. 0.0 to 2
			gray.	ч чи	200	3	F
,	10-0		,			Con	<b>1</b>
	=		9 14.71 - increa	Le fo	1	Can	3. Denison cak 1. 2.7 to 4
		1	moisture con base of over	tent to		5	2. 4.7 to 4 3. 6.7 to 8
	=		V-00 01 0101	- W. W. D.	1	Cen	4. 8.7 to 3
·	]					6	6. 12.7 to 7. 14.7 to
			from 18.71 to 2 calc.	.0' -		Con	8. 16.7 to
	=					Car	10. 20.7 to
	0.0					Cen	Note: Jar samp
	=		22.0' to 23.5'			9	sample depti
]	=		CLAY, calc., v/ sca gravel and vell-ro	ttered		den	<b>†</b>
			siltatone concreti moist, medium to s	DES.	22.7	10	4. Cartons:
			tan.	• • •	565	out o	2. 31.6 to
	=		Augered into prin	iy Lossi	267	26 25	4. 43.8 to. 5. 49.0 to
			Augered into prin material @ 23.5%, se to 25.0%, cleaned ou started 6° core @ 26	and	L. 8		1
					292		5. Shale west 24.91.
	30.0		26.2' to 50.0'	*	G.	1	
	=	2	SHALE, sandy, non-c hard (penetrometer	alc.,	02	١.,,	6. 8" casing
			thin-bedied, fossi	115.,	33,	32.9	25.01.
	1		to T.D., unvesther	ed, gr	75	1	7. Drilling
	=				06	2	7. Drilling 1. 0.0 to 2. 2. 2.7 to 22
					37.2	31.9	3. 22.7 to 2 4. 26.2 to 5
					L 00		1 ]
<u> </u>	ω.ο	3	·		. )		{ .
]	• =		Sendatone concretion	S AYE		3	
	=	::::	0.11 in thickness at following depths: 28	.51.	L	1102	1
· ·	=		29.31, 30.31, 31.21,	37.9.	١.		}
	=		Shaley sandstone bed		45.2	┧,	
<b>.</b>	=		the following depths		L.	4	
İi	=		JUAN 10 3/AL -	,	***		• •
j	50.0	35	ali, fisile.	and Zone	ععا	50 4	
	-		badly weahed b	y core	1	7	١.
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	´ =		T.D 50.0' -		1		
j i	<u> </u>				1	1	I

6DC-17 0 2 seets DRILLING LOG Southwestern fort brth Aubrey Dom Site No. 1 SECURIOR CO SET S" AUCET 6" d.b., 6" cor COFFS Of Engireers MANUFACTURERS DEFICATION OF BAILS Pailing 1500 6DC-17 HAVE OF CALLER TA FOTAL NUMBER CORE BOXES Schoonover ----9 9476 more | 17 Sept. 71 | 20 Sept. 71 (Zetaticas Dinesimes. . ... ... THICKNESS OF OVERBURDEN 23.5 PELEVEZION TOP OF HOLE Torfe for account top coning A. DEPTH DRILLED INTO ROCK 50.0 S TOTAL DEPTH OF HOLE CLASSIFICATION OF MATERIALS REMARKS
(Deling ions, super leas, depth of seastering, six, if significant) ELEVATION DEPTH LEGENO 11(00) 0.01 to 5.51 1. After completion, bole was bailed to 45.0° with casing pulled. 24 hour check 1 SAND, fine-grained, clayer, hard, slie moist, brown 1,7 5.51 to 22.01 Con <u>սուհարկատվուտենումնում արևանումնում և ա</u> CLAY, sandy, non-calc., sin moist, hard, nottled tan and 2. Jar: A. 0.0 to 2.7 01n 3 gray. Cay 4 3. Denison canst 3. Denison cane:
1. 2.7 to 4.7
2. 4.7 to 6.7
3. 6.7 to 8.7
4. 8.7 to 10.7
5. 10.7 to 12.7
6. 12.7 to 16.7
7. 14.7 to 16.7
8. 16.7 to 18.7
9. 18.7 to 20.7
10. 20.7 to 22.7 14.7<sup>1</sup> - increase in moisture content to base of overburden Car Gu from 18.71 to 22.01 . Cir Car Note: Jar samples taken from shoe at each sample depth. Cent 9 22.01 to 23.51 CLAY, calc., w/ scattered gravel and well-rounded siltatone concretions, moist, medium to stiff, Can 10 Cartons: 1. 27.4 to 28.4 2. 31.6 to 32.6 3. 38.8 to 39.7 4. 43.8 to 44.5 -- Augured into primary material @ 23.5', set casing 2. to 25.0', cleaned out, and L. started 6' core @ 25.2' - 68 5. 49.0 to 50.0 Shale weathered to 24.91. 29.2 26.21 to 50.01 1 G SHALE, sandy, non-calc., hard (panetrometer # 4.5), thin-bedded, fossilif., unjointed and unfracture 31 to T.D., unweathered, gray, 02 6. 8" casing set to 25.0". 32.9 . Drilling nethods:
1. 0.0 to 2.7 - augur
2. 2.7 to 22.7 - d. bill.
3. 22.7 to 26.2 - augur
4. 26.2 to 50.0 - 6 2 0.4 372 314 L ō.o 3 Sandstone concretions avg. 0.1' in thickness at the following darths: 28.5', 29.3', 30.3', 31.2', 37.9. 3 L 0.0 4 <u>արևարկարկարկումուսիրակարկում</u> Shalwy sandstone beds at the following depths: 4 27.0 to 27.4 - laminate 36.8 to 37.1 - \* 42.0 to 42.9 - \* and . sli. Massile. Zone badly washed by core bbl. action. €.0 5 <u>500</u> T.D. - 50.01 -

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COCATCLE OF SALE	· · · · · · · · · · · ·	•	6	ي نے ا	5.6
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- BINDER V. MOIST, RU	57 Brow	γ	14.6	· .	7.6'
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- CRAY BROWN WY PUST	YELLOW	25.2	1 1	TOR S	AMPLE.
CRAY BROWN WY RUST UNWEATH, ZONE IS BE	VISH CA	7	1	C-1:22.	SAMPLE 96-10.6: 1 SAMPLE 34) From 14.6: TOOK AMPLE, 4-23.4
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VIOUS EDITIONS MAY BE USED		*#91861		AM 176-111	COC-18
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Base with			34.0' to 34.5	•	L.	l	15.0 and 22	.O feet is the folloyi	E
	["] =		35.11 to 35.3	•	0.5		Limestone	, hard,	+
	ات.م		7.TIPOMANO	<b>.</b>	l.	2	. massive, and yello	vesth.; whit	E
]	]	氢	n. hard, from 3 to 31.6°.	1.51	31.0	ا " ا	fossilife	rous.	E
	E	醠	to 31.61.		<del>""</del>				E
l i	∄				[ Խ.	l			E
]	=				1.4				E
	3					3			E
	.⊒				360	٦.	* * *		E
1 1	3	<b>≣</b> 3		-	G.		•• • •	•	E
1	<del> </del>	$\equiv$			1.0	<b> </b> -	}	*	E
	∄				'''	l			F
··	7	==	* - ****	• •	١.		• •	**	F
	]	<u>#</u>	·		<u> 41.c</u>	<b>.</b>			E
	∃				9.0	4			E
]	I∃	$\equiv$	T.D 43.01 -		430				E
1	ΙŦ	i			l	!	l		F

RECORD DRAVING-WORK AS BUILT

37 H 00 NO	ACTION	CATE	O.S.	SCRIPTION OF	REVISION	
	U.S. ARM		NEER DISTRICT RPS OF ENGINEES FORT WORTH, TEXAS		ORTH	
9E3194E9 97		F	RAY ROBERT	S LAKE		
		ELM	FORK, TRINITY	RIVER, TE	XAS	
00104 17	l	EMBAN	IKMENT, SPI	LLWAY	AND	- 1
			OUTLET W	ORKS		
ataitate &.	1		LOGS OF BO	DRINGS	}	
	60	C-16,	6DC-17,6 DC	2-18, AN	D 6A40	-19
SCOULTTED &			INVITATION NO DACW			
a = = -			CONTRACT NO CACW 6	1.85 € €		SEDUENCE
ENGINEE®			CRAMING 4,NSE4		שיננו יס	ĬĨ

Hele No. DRILLING LOG TOUTHWESTERN carboloy Port Forth Tenner to him to and other more than a second more to the second more to the second more to the second more to the second more to the second more to the second more than a second more To whost activates to be benefice or paice
7-11177 56
15 TOTAL BO OF OVER 1 PRIVATED SHOWS THE PRIVATE STREET 5117-20 Tree to The Control IL TOTAL HUMBER CONE BOXES 5 s date move | 6 Pay 72 8 Kay 72 15 ELEVATION TOP OF MORE 505-05.
16 TOTAL COAR RECOVERY TOP Moning
17 South June 7 Charles 1 Control 1 Con \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 4 14940 50 ... 65 6"3 6500 या. ५ 1 \*5\*4. 500\*\* 50 +5.0 ..... ..... CLASS FICATION OF MATERIALS A to 19.01 5.01 1. After completion, hore was belied to 42,1%.
3° 1.D. perforated plastic casing was place to T.D. CLAY - -0.0° to 1.3° - sli. cals. poist, stiff, brown. B 1.3' to 4.1' - ron-calc., moist, stiff, mottled, brown, ten. 2 4.1' to 7.8' - increase in sand content, med., 2. Jars:
A. 0.0 to 1.0
B. 2.0 to 3.0
C. 5.0 to 6.0
D. 10.0 to 11.0
E. 15.0 to 16.0 moist, tar. 7.8' to 19.0' - non-cale, noint, stiff, tan. ত Jar symples selected from continuous sheld tubo samples through overburden. -- Start 4" core @ 19.01 -3. Cartons:
1. 21.8 to 22.8
2. 26.2 to 27.2
3. 30.0 to 31.0
4. 33.6 to 34.6
5. 42.5 to 43.4 E 19.01 to 21.81 19 C LIFETTOUS, stained, m. har jointed, tan. ી. ઇ.ઇ 210 Gò.S 4. Reathered to 22.8 21.8' to 47.0' STALE - -21.8 to 22.8' - sli. Base 230 Weather calc., stiff, meather tem. **'**L. 22.81 to 47.01 - sli.
calc., stiff to hard,
unfointed and unfractured except from 24.0
to 24.5, sli. sandy, 0.5 26.5 2 Ն, ک.ه 2 3 3 4 0.5 M.O' to M.1 -highly fossilif. 36.0 == Ն, 4 0.6 41.0 1 5 45.0 420 41.0 T.D. -, 47.0' -٠,١٠٠ عوره <u>ئ</u> عيد '.

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	ING LO	C Link,	Touthwestern	Por			A114
And	rey De	n Site		16 M16	490 1476	07 917 EVATION	those (law m)
EL LOCATION	(Comen		stilling basin		IN FOR CO		THE REAL PROPERTY.
Corp	AGENCY	-	SCHIEB; ORSIN	IL MAN	77575EE 1941	126 15	MATION OF DATE
CO 17	1A	#21100		13 707	119.00	WYACE	8
E #44 60			6440-21	L	LL BURGET		0125 5
Cr	on size	,		IL CLE	FAT104 67	OVER #A	45W
- 01046710			BEG FROM YEAT	N. DAT	E 100. E.	13	Kay 72
, ****				17 ELE	VATION TO	P 07 HO	581.04
-			20.5	10 101	AL COAE A	COVER	Y FOR BORING
1 TOTAL DE			52,2		wine	200	ile "
ELEVATIO-			CLASSIFICATION OF MATERIA (Decorprise)	''' //	\$ CM#	POR OF	(Drefine ton)
					استا	ı	
	=		0.0' to 23.7'		1 1	A	1. After
1			CLAY, non-calc., man	dy, m	st,	<u> </u>	bole was
1 1	=	`	stiff, tan to gray	•	l .	_6_	and 3" I
1	1 -3				1 1	<u>'</u>	plastic to T.D.
1	=						
1	=					<u>c</u>	1
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	10.0		1 74 9 AL 1 1 1 1 1 1		•	<u> </u>	D. 10.0 E. 15.0
]	=					2	7. 20.J
ļ	=		23.7' to 28.2'				'0. 25.0 E. 29.0
1	3		SAND, clayey, moist, tan and gray.	m. de	ja,	l	Jar sa
ļ .	=		, , , , , , , , , , , , , , , , , , ,				solect
1	=					┝╤╌	conting sample
	=					<u>                                     </u>	burden
			•		1	1	3. Carto
	=	,	28.21 to 29.21			i	1. 36.2
1	] =		GRAYEL, sandy, rex. s	ize		1	2. 42.1 3. 45.2
1	20.0		-3/4", well-rounded tan.	, 0013	<b>,</b> ,	F	4. 50.0
	=					<u> </u>	
1 ·					1	1	4. Primar; not wer
	1 3			_	1 :		DOE WE!
1						<b>,</b>	1
1 . 1	1 =		***			0.	
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	1 3	\	princip material C	27.2.	[ -	٠ ا	į.
	=		Start 6" core 9	31.7		1	
}	] =				1	H.	1
	٠.o_		31.7' to 52.2'		l	۲.	-
}	3		SHALE, #11. calc.,	ımuee	31.7		}
1	=		n. hard. thick-be	diei.	[ ]	ł	1
1	=		ali. sandy, some j zones below 42.1	ointed	11.7	Į	
	=				(	Ι,	
<u>ئنى</u> [	=				١,,,		
	=		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	w p-	362	٠.	* ****
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1 300	1 =				1	2	
	] =		,		2.5	<b> </b> ~.	
	=	757		, -	ier,		(
1	=	<u>;:::</u>	40.6' to 42.1' - SAN soft, with SHALE la	ndrus.	1	<del>-</del>	1
1	=	= 2	tan.		1	-	
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1 .					452	L	1
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Í	ہے ا		.T.D 52.21 -		52.2	Ľ	}.
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Hele No. 6MC-21

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succes, 4" 30r8 NG LOG Post Vision Couthwestern Fort Torth 16. BATCH FOR ELEVATION INVESTIGATE ey Dan Site
Communes of must
abuthernt - stilling besin
stract
of Engineer
to Market of Section 1 6440-21 th manufacturent attention of participat ALCEA IS TOTAL MUNICIPEDED DATES osin 5 lay 72 M. BATE MOLE. 5 KEY 72 16 OMELMED. IT ELEVATION TOP OF HOLE 581.04 -31.7 20.5 52.2 20.5

10. TOTAL COS SECURET FOR BOOMS

52.2

CLASSIFICATION OF WATERIALS

(Coverage law)

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(Coverage law) LED INTO BOCK TH OF HOLE 32PTH LEGEN miljanikankankantantantantantantantantantankankankantantantantantantan A to 23.71 1. If ther completion, bole was bailed to 4.60, and 3. I.D. perforated plastic pipe was place to 7.D. perforated plastic pipe was place to 7.D. 2. O. 10.0 to 1.0 E. 20.0 to 3.0 C. 5.0 to 6.0 E. 29.0 to 21.0 E. 25.0 to 26.0 E. 29.0 to 20.0 E. 29.0 to 30.2 Jar samples were selected from continuous shelpy ture samples through overburden.

3. Cartons: 1. 36.2 to 37.2 2. 42.1 to 43.1 3. 45.2 to 46.2 4. 50.0 to 50.9 E. 20.0 to 50.0 to 50.9 E. 20.0 to 50.0 CLAY, non-calc., sandy, no st, stiff, tan to gray. 6 C 0 23.7' to 28.2'
SAND, clayey, moist, m. dense,
tan and gray. ٤ 28.2' to 29.2' GRAVEL, sandy, rex. size =3/4", well-rounded, noise, tan. F G. - Drilled into unreathered princry material 0 29.2 - Start 6" core 9 31.7" H. 31.7' to 52.2' 574LE, sli. calc., unvex. n. hard, thick-bedded, ali. sandy, some jointed zones below 42.1, gray ١ 2 40.6° to 42.1° - SAMESTONE soft, with SHALE leminas, tan. 3 452 4 الإير أأملو = 11 5

									Hala Ma	354C-2	1A
	ING L		Ď1 V	Southwestern	Fo	ation	th	(3)	1010 110	0+3 1n	
Aubrey	Dam 5	Site I	Νo		TO SATE	AND TYPE	OF BIT		by & 4"	Core	
Not Shov	νπ. Υ	2,137	1	4 Y 613.600	١ ١	ASL.					_
CONLING	AGENCY				PA1	MCO N	10del	1250_			
Corps o				354C-21A		111111		*	7	17	
Trinity	Bailea Engine	ieris	16.	Bill Stanton Testing Corporation		ATION GA			11 e Note	2	$\dashv$
COMECIO					14. DATE		1914	****	140		$\exists$
THICKNES				30,6	<b></b> _	AT104 TO		2-6-72	579.74	12-13-7	-
DEPTH DA				69,4	18 TOTA	L COME R	ECOVER	FOR 801		93.2	
, TOTAL DE	P7H 0F	HOLE		100,0	Se		1 und		marks	11	
LEVATION			ᅄ	CLAMIFICATION OF MATERIA	**	A COME	POE CO	(Dellar	ARMAR I Ima, mara	RE Place, depth of a specimen	
		7	n	Brown Clay		100	WI		elby To		_
577,74	2=	7,4	4	2.01		100	W2.	_		0'-28.0	, <b>,</b> ,,,,,
	<u> </u>	///	Ŋ	Reddish Brown Sandy	Clay	100	-11_ W3	JAF	SAMP	LES	3
573.74		V//	Ά	6,01	ł	100	W4	1.	2.0'-		3
,	· =	V//	7			100	J2_	2. 3.	6,0'- 10,0'-1		目
	8=	V//	Λ	Tan Silty Clay w/Sand		100	W5	4.	14.0'-1	5.0'	=
	10=	Y//	Λ	Lenses	١	100	W6		18.0'-1 22.0'-2		4
	12=	///	Ŋ		1	100	J3 W7		6.0'-Z		∄
	=	<b>V//</b>	//		1	100	ws		30.0'-3		1
	14=	<b>///</b>	Λ	1		100	14	1.	NP SAN 0.0'-		1
	16=	<b>///</b>	Λ		Į	100	₩9	2.	1.01-	2.0'	ակակակակակակակակակա
561.74	18=	<b>Y</b> //	4	18,0'		100	W10	3. 4.	3.0'- 4		크
	Ξ	<b>!</b> ///	//	Tan Sandy Clay	1	100 100	_15 W11	5.	7.0'-		∄
558, 74	20=	<i>!//.</i>	Д	21.01	<u>,                                    </u>	100	W12	6. 7. 1	8.5'-10 1.0'-1		=
557.74	22=	{! <u>!</u> ./	Δ	22,51 Tan Clayey San		100	W13		2.51-1		目
554.94	24=	<b>#</b> //		Tan Clay w/Sand Lenz 24,81	ics	100	W14 W15	9. 1	5.0'-16	6.5'	#
	_ر, ا	777	Ø	26.5 Tan Clayey San	,	100	W16		16.5'-11 19.0'-21		크
553,24	26-	16	Ħ	Tan Silty Sand and Gr		100 100	17 W17	12. 2	0.01-2	1.0'	∄
	28=	IIY	ò	and only said and on	••••	<b>//</b>			11.0'-2: 3.0'-2:		1
549.14	30=	1 A .	9	30.61		100	18	15. 2	4.0'-2	5.01	1
	32=			30.6'-50.0' SHALE, Soft-Mod. Ha	rd.	R-1			:5. 0' -2: :7. 0' -2:		킠
	=		I	Unweath., Gray-Dar	k .	90%	Box 1	Moist	at 18.	0'-22.5	۱∄
	34 =	$\equiv$	Ш	Gray, Thin-Bedded t Massive, Non-Jointe		35.0 R-2	1 * '		t 22.5'	-30,6' 8,0' and	∄
	36-			Often Sandy, w/Num	Frous	1	<u> </u>			to 30.0	
	38 =		≣	Sand Pockets and Len 32.3' to 32.4', Sandst		90%	Box	3"She	lby Tul	be Samp	
	40 =		Ξ	MHard, Gry., Lar	n.,W	40.0	2	(Cont	-31.0' lnued)_		를
	42_			45.0'-45.3', Limesto Gray, Hard, Fossili		R-3	Box		Coring		追
	"		Ξ	Colltic.		90%	2	•		AMPLE	s 🗏
	44-	▦	Ξ	Sand Pockets and Lens Gray, MedFine-G		45.0	!	1.	33,61-	34,51	7
	46-		Ë	Friable, Soft-Mod. I		R-4	Box	2. 3.	36.7'- 40.9'-		킄
	48-		Ξ	at: 31.5-31.7, 31.9	}-	90%	3	4.	45.61	46.5	킄
529.74	=			32.1, 32.4-32.6, 40 40.5, 40.9-41.0, 41		50.0		5. 6.	49.1'-		且
	50-		Ë	42.1, 42.4-42.5, 43		R-5	1	7.	57.31.	-57.81	=
	52-		Ξ	44.2, 44.6-45.0, 46 46.5, 46.8-47.0.		86%	Box	8.	61.2'-		긥
	54-			46.5, 46.8-47.0. 48.0'-50.0; Sandston Mod. Hard, Well-	ne,	55.0	4	10.	70.01	-70.91	큽
	56-	≝	Ë	Cemented, Gray.		R-6	1	11.		-77. 9' -84. 5'	크
			Ξ	50.0'-80.0'	70	84%		13.	85.0	-85.91	直
	58-		Ē	SHALE, Moderately H Unweathered, Dark C	Gray	1		14.		-90.9' -94.3'	∄
	60-		Ξ	to Black, Laminated	•	60.0 R-7	DOX	16.		-98.9	킠
	62-		≣	Non-Jointed, w/Num Sand Pockets and Len		1009	5		BOXES		킠
	64-		Ē	53.5'-55.0', Sandate	one,		1	1. 2.		-36.7' -43.5'	目
	=	12.	=	Hard, Fine-MedG: Well-Cemented, Gra		65.0 R-8	1	3.		-43.5' -49.1'	Ξ
	66-		=	Sand Pockets and Lens	-	1	_	4.	49.11	-56.61	===
	68-		Ξ	Gray, Med Fine-Gra	ined,	86%	Box 6	5. 6.	.56.61 64.41		킠
	70-			Friable, Soft-Med. I at: 55.0-55.9, 56.1		70.0 R-9	<b>∤</b> ઁ	7.	71.31	-77.9'	鳿
	آ_رہ	፰	Ξ	56,2, 56.9-57.4, 58	. 1-	ł	-	8. 9.		-82,8' -90.9'	퀴
	72-			58.5, 67.2-71.3.	_	100%	BA-	10.	90.9	-96.31	且
	74=			64.4'-65.0', Fossili Zone, Hard, Calcare		75.0 R-10	J 7	111.	96.31	-100.01	目
	76-			1		1	<u> </u>				킠
	78-			79.3'-79.5', Sandato Mod. Hard, Gray, Fi		94%					킠
199.74			I	MedGrained, Well		80.0	Box			•	耳
	80	Έ		- Cemented 80.0'-96.3'	_	R-11	8	1			∄
	87-	▤	Ī	SHALE, Mod. Hard-I		1007	4	-			1
	84 =			Unweath., Very Dark to Black, Massive, N		85.0	1	1			킠
	86-			Jointed.		R-12	:1	1			耳
	=			82.1', Numerous Silt		100%	Box 9				∄
	88			Nodules, Tan, Very H	ard.	1	1	1			
	90-					90.0 R-1					<u>ավումիակայնակարկալիակարկացերորությունակարհակարարարա</u>
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483.44 479.74

						Hele No.	354C+2	A15
S	outhwestern	For	t Wort	h	(3)		0037	
No.	1	W MEE		90 917 VATIO	3" She	lby & 4	Core	
7.154	-J	λ	ASL					
•	1.03,27		MCO M			OF DAILL		
F.C.			L 00 07 (			7	1000010	7
	BIII Stanton		LHUNGEA			11		$\equiv$
ing T	Bill Stanton esting Corporation	_	ATION 67		ATER :	ee Not	e 2	,
·- CD _	## PRO- PRO- VERT,	4 DATE		L_	12-6-		12-13	.72
1#5EH	30.6		L CORE R			579.7	4. 93.2	
POCR	69.4	19, 316×4	TURE OF	-	TOA			
-	100, 0 CLAMIFICATION OF WATERIA		e Note		der "	ACH	1841	
. 7	(Protegism)	.	S CORE RECOVI EAT	HO.	(0)		ARES Was bose, de L, of especies	
	Brown Clay		100	W1		helby		Ξ
44	2,01		100	W2_	- Sa	mples	0.0'-28	<u>-</u> -۱۵۰
///	Reddish Brown Sandy	Clay	100	W3		R SAN		Ξ
///	6,0'		100	W4	1 ;		- 3.01	Ξ
<i>771</i>	Y1.Y	-	100	JΣ	2.		- 7.0' -11.0'	Ξ
///			100	W5	4.	14.01	-15.01	=
///	Tan Silty Clay w/Sand Lenses	l į	100	W6	] 5. 6.		-19.0' -23.0'	Ξ
///			100	33	7.		-27.0	Ξ
$/\!/\Lambda$			100	W7	8.	30.0	-31.01	=
///			100	W8	-  <u>w</u>		MPLE	<u>s</u> =
//X			100	J4_	┥;		- 1.01	
///			100	W1	2. 3.		- 2.0' - 4.5'	Ξ
	18,01		100	J5	4.	4.5	- 6.0'	=
1//	Tan Sandy Clay		_100_	WI			- 8.5' -10.0'	
<i>!</i> //	21.0'		100	WI	4 _		-12.5	1
124	22,51 Tan Clayey San		100	16	Ч 8,		-14.01	- 1
	Tan Clay w/Sand Len	5 <b>6</b> 8	100	WI	=1 ′'		-16.5	÷
7.77	24.8'		100	WI			-18.0' -20.0'	_
<del>!}}</del>	26.51 Tan Clayey Sar		100	17	- iz.		-21.0	:
101	Tan Silty Sand and Gi	avel	<del>  100</del>	I WI	1 22.		-22.0'	-
	10.41		100	<b> </b>	14.		-24.0' -25.0'	-
4	30.6'-50.0'		R-1	J8	16.	25.01	-26.01	
	SHALE, Soft-Mod. H.		90%	Bo	x 17.	27.0	-28.0	, cı
	Unweath., Gray-Da Gray, Thin-Bedded		35.0	1 1	l wo		8.0'-22 5'-30.	
	Massive, Non-Joint	ed,	R-2	1	Set	Tub at	28.0'4	and _
	Often Sandy, w/Nun		9,00	-			ole to 30	
	Sand Pockets and Le 32.3' to 32.4', Sands		90%	Во	~   30.	0'-31.	Tuba Sa Oʻ	ubre
	MHard, Gry., La	m.,W.	40.0	) Z	] (Cd	ntinue	1) (1	
	"45, 0'-45, 3', Limest Gray, Hard, Fossili		R-3	Во		an Cor at 31	ing w/4	
	Collide.		90%	2	1 1		SAMF	LES
	Sand Pockets and Len		بيدار	,	-	1. 33.	6'-34.5	, ,
	Gray, MedFine-C Friable, Soft-Mod.		R-4	Bo	^  .		7'-37.7	
	at: 31.5-31.7, 31.		90%	3			9'-41.8 6'-46.5	
	32.1, 32.4-32.6, 4	0.0-				5. 49.	1'-49.7	"
	40.5, 40.9-41.0, 4 42.1, 42.4-42.5, 4	3.8-	80.0 R-5	4		6. 50. 7. 57.	7'-51.5 3'-57.8	
	44.2, 44.6-45.0, 4	6.3-	~~,	1			2'-61.7	
	46.5, 46.8-47.0. 48.0'-50.0; Sandsto		86%	Во	×	9. 67.	8'-68.7	
	Mod. Hard, Well-	,,,,,	55.				0'-70.9	, -
	Cemented, Gray.		R-6	1			61-84.5	, -
	50.0'-80.0' SHALE, Moderately	Hawa	84%		1	3. 85.	0'-85.9	<u>'</u>
	Unweathered, Dark			i			0'-90.9	,
	to Black, Laminate	đ,	60.1 R-7	1 50	× 1		01-98.9	, -
	Non-Jointed, w/Nu Sand Pockets and Le		100	1 2	'	вох		_
=	53.5'-55.0', Sands		1.00	1		1. 31.	0'-36.7	" _
11:	Hard, Fine-Med C	iraine					71-43.5	
	Well-Cemented, G		R-8				5'-49.1	-
	Sand Pockets and Len		86%	Bo		556.	61-64.4	r i
=	Gray,MedFine-G Friable, Soft-Med.	Hard.	70.	1 6		6. 64.	4'-71.3	3'
	at: 55.0-55.9, 56.	1-	R-9				31-77.9	,
	56.2, 56.9-57.4,	8.1-	-			9. 82.	81-90.9	, -
	58,5, 67,2-71,3,		100	I Ro		0. 90.	9'-76.	۶۰ <u>-</u>
	64.4'-65.0', Fossi			<u> </u>		1. 96.	3'-100,	יט. –
	Zone, Hard, Calcar		R-1	٦				-
$\equiv$	79.3'-79.5', Sands Mod. Hard, Gray,		94%	$\Gamma$	7			-
	Med Grained, We		80.	ء اه	"I			
	Cemented		R-1		2×		·	=
	80.0'-96.3' SHALE, Mod. Hard	-Hard.	1	1	_}			-
	Unweath., Very Da	rk Gra	у [	1	コ			_
	to Black, Massive,		85.					_
	Jointed.	11.04	R-1		×			-
	82.1', Numerous S		100		,			-
	Nodales, Tan, Very		90	اه	.1			
$\equiv$			90. R-1					
=	3		1100	K.hn.	* 115			

ENEVATION	perm uc	0000	CLASSFICATION OF MATERIALS (Dissipator)	% COPE SECOV	101 Of 14471 140 1	Operates (Discharg over over him, depth of passioning one of agreement)  \$
483,44	94 H H H 100		96.3'-100.0' LIMESTONE, Gray, Hard, Unweathered Total Depth = 100.0'	93.0 R-14 92.5; 97.0 100.0	Box 10 Box	Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation: Primary Logged By: Marrand Marple, Corps of Engineers, Fort Worth District Note 2: Installed 2" Plastic Pipe from 581, 34 to for ground water observations.

RECORD DRAWING-WORK AS BUILT

Sym )	00 HO	U.S. ARM		OCSCRIPTION O NEER DISTRICT, FORT V MPS OF ENGINEERS FORT WORTH, TEXAS		
94 910	MED 811			RAY ROBERTS LAKE	<del>-</del>	
				FORK TRINITY RIVER TE	-	
9440	871		EMBA	NKMENT, SPILLWAY	AND	
				OUTLET WORKS		
45716	PES 915			LOGS OF BORINGS	3	
		6A	4C-20	0,6A4C-21, AND 3S		
SUBM	111ED 81			INVITATION NO DACWES-82-8-00		4,1962
				CONTRACT NO. DACW 63-92-C-C	083	SEQUENC
ENGI	ICTA;			DRAWING MUMBER	SHEET NO.	l iĝ

Holo No BAGC-22 Port Porth DRILLING LOG Southerstern or 2 seets m wie and type of bir for gumon, 6" carbolor, 6 to parte you cleverion indemited whill diamond Aubrey Dan Site Intake structure

Intake structure

Onticine active

Corps of Engineers

Hote to (de shows on thomas series
and the success MANUFACTURER & DELIGNATION OF DAILL Failing 1500 11 TOTAL MOMENT CORE SOUTS | G |

ILL ELEVATION SPOUND NATER | SCHOOL |

| LEVATION SPOUND NATER | SCHOOL |

| LA VAY 72 | 9 VAY 72 8A6C-22 -----Schoonover Betaticer Dietries." \_ 986 FROM TERS 11 ELEVATION TOP OF MORE \$ 593.5

15 TOTAL CONE RECOVERY FOR BORNING \$65.

15 SERRYPER OF INSPECTOR CONTROL OF THE SERVICE OF THICKNESS OF OVERBURDEN 8.0 S TOTAL DEPTH OF HOLE 48.5 ELEVATION DEPTH LEGEN 0.01 to 2.61 1. After completion, boly
was bailed to 45.0' and
2' I.D. perforated plat
pipe was placed in hola SUND, sli. clayer, fine to ned. grained, sli. moist brown. В <u> համասիավայիանանանականանանանանանանանանանում ամայիս</u> 2.61 to 8.01 A. 0.0 to 2.6 B. 2.6 to 6.5 C. 6.5 to 8.0 D. 8.0 to 9.0 E. 9.0 to 10.0 CIAT, sandy, roist, nedium red to tan. 8.0° to 10.0° D CLAY-WALS, cale., roist, stiff, tan. 100 ٠. - - Start 6" core 0 10.0" -1. 10.0 to 11.0 2. 17.2 to 18.2 3. 22.6 to 23.6 4. 27.7 to 28.7 5. 38.4 to 39.4 6. 45.2 to 46.2 10.0° to 19.0° 93 CLAY-CLAIR, calc., highly jointed, n. bard, numer you. it routlets, open, highly stained joint from 14.1 to 15.3, tan end grey. 0.2 0.2 -- Transitional weathering contact Q 19.0' - - -167 4. Weathered to 19.0" 19.01 to 36.91 Stained to 22.6', thick 0.5 5. Base of jointing at 22.6'. bedded, fossilif., gray 23.1 19.0' to 30.9' - n. heidi.o 270 50.9' to 56.9' - muser nodular LIMESTONS pieces, hard. 0.9 32.5 5 - - Transitional contact 1:36.91 - - -L ٠٤. 36.91 to 43.61 .... 旧时部部門 LIPETON -- 36.9' to 42.1' - m. bard fossilif., shaley, gray 377 6 G. 0.3 . . 40.0 42.1' to 43.6' - sandy, fossilife, shaley, HARD LILT 7 gray. 43.61 to 47.21 115.5 SHALE, calc., w. bard, scattered LUMESTONE cone 8 ١. cretions, gray. 1.0 1 43.6' to 43.8' SILTSTONE, m. hard, tan. 47.2' to 48.5' 48.5 2.D. 48.5' -

						_		
	LING LOG	Southwestern	For*	Worth	Distr	let		
I. PROJECT	rey Dam		ute	AND TYPE	OF BIT	4		
		er (en)	IT WANDARTONEN & DELICHA					
SEA 7	8+00, West AGENCY -C	ADUCMENT C L		ailing		EN.		
USACE	CA ohour in the		1. 101	AL NO OF	OVER			
NIO	****	8A4C-25		AL NUMBE		_		
P NAME OF	Jay Cr	cmean	S. CLE	VATION G	OUND	176		
TE DINECTIO	4 05 HOLE	1.	4 DAT	-	1"2	5 1		
			7 848	VATIO - TO				
			4 707	AL CORE	RCOVER	7.		
		10.6	9 SIGN	ATURE OF	aymond	ť		
CLEVATION	DEPTH LEGEN	CLASSIFICATION OF MATERIAL	5	PECONE PECONE	BOX CO	Γ,		
	<u> </u>			RAY	NO.	L		
j	~ #	· 0.0' to 17.6'		] _	<u> </u>	:		
1 1	E	CLAY-lean, sandy-fine				,		
<b>!</b>	🛱 ·	silty; dry.	•	l	L	t		
l i	E	@ 0.6 a becomes noter.		[	δ_	í		
ì i	=	@ 0.6 - becomes moist. @ 1.7' - becomes stiff,		1		Į		
	픠	veli consolidated, fa @ 5.3' - becomes gravel	t.	;		E		
} }	· 1	I livestone, hard, max	Ly	ł	C	1		
} [	=	size 1"; lean, with				Ē		
1 1	3	color change. Yellowish brown.				1		
	٠, ٦			l '	ā	2		
i i	'9님	@ 13.6' - becomes very lean with more sand fin	'			1.3		
	1 3	]		)		2 3 4 5 6 7		
i i	3	i i			E	6		
1 1	∃	ţ		i		8		
1 1	Ŧ					ĺ		
1 1	]			}	·F	Ľ		
-	7	17.6 to "4 3"						
} }	3	arel-hard, 1	&			1.		
1 1	7	angular limesto.				١.		
1 1	. 3	size 1-1/2"; san	•		G	S		
	20-3	coarse; silty; mot;- brown, gray, & yellowis	h-	L-05	_			
	<b>=</b>	brown Start 4" core at 20.0'						
) j		}		22.0		ŀ		
!!	. =	20.0' to 69.2'		1.0.2	1	ŀ		
( (	<u>-∃</u>	SHALE, soft - moderatel	<b>,</b>	27.0				
	=	hard, moist, interbedde with scattered, thin	đ	L:0.4		l		
( (	-∄ `	sandstone seams.		16.5				
	=		02 1 01 2	Ö		l		
i 1	4	Weathered, oxide stat						
	∄	yellow-brown's gray.	-					
[	30-7	24.6'-24.8'-SANDSTONE	. 1	10 4	2	ľ		
l Í	3	fine, argillaceous,	•	21.5		١.		
!!	4	moderately cemented.		~1.22		ľ		
	3		80.2					
1	_ =	dark gray with oxide staining limite	3123					
	Ė	to Badding Planes.	a l	35 L	3			
,	, E.	•						
	=	28.2-29.6' - Possilif 29.6-29.8' - Sandston 32.8'-33.2' - Sandston	erous e	عتعة	4	1		
	3	32.8 -33.2' - Sandston	•	F-0.6	- <del>-</del> -			
	∃ ∃	}				}		
	40 =	<u> </u>	£x3	39.8	_			

TRACT 033

8A4C-25 or 2 seers FORE Worth District

No size and time or six 4" Core Barrel
III, DITES TO TEXT AND THE SIZE AND restern. HSL II WANTEFFERENT SELECTION OF SAILE Failing 350 C.L. TATLED OF OVER. 4C-25 IN TOTAL NUMBER CORE SOLES H DATE HOLE 25 Hay 72 26 Hay 72 \_\_\_ PEF. FROM FER. IF. ELEVATION TOP OF HOLE: 600, && to Total conferences for boring to signature of inspection Raymond T. Hagen S CORE BOR ON STATE OF STATE O IFICATION OF MATERIALS A JAR SAMPLES 17.61 A - 0.02 to 1.07 B - 3.07 to 4.04 C - 6.07 to 7.07 D - 9.07 to 10.07 E -12.07 to 13.07 F -15.07 to 16.07 G -18.07 to 19.57 lean, sandy-fine; dry. 8 becomes moist.
- becomes stiff,
consolidated, fat
- becomes gravelly
tone, hard, max
l"; lean, with
change.
wish brown. c CARTON SAMPLES 1 - 22.3' to 23.3' 2 - 29.4' to 30.4' 3 - 34.0' to 35.0' 4 - 36.4' to 37.4 5 - 46.9' to 47.9 6 - 49.0' to 49.8 7 - 52.0' to 53.0' 8 - 58.8' to 59.8' <u>a</u> - becomes very ' . PENTROMETER BLOWS ٠F 18.31 13.6' to 14.1' - 43 14.1' to 15.1' - 72 hard, rounded & limestone; max /2"; sandy-fine to silty; mottled-ray, & yellowish-Sec casing to 20.0° and started coring at that depth, G L-05 " core at 20.01---40.2 1 69.21 25.0 oft - moderately sr, interbedded corred, thin ; seams. L-0.4 803 1 L-0 ico'- for? ed, oxide stains, brown's gray. 2 14.8 - SANDSTONE, rgillaceous, a ely cemented. ay with by taining limited ing Plenes. .6' - Fossiliferon .8' - Sandstone 3.2' - Sandstone تبعدا 4 L-0.6

33.3'-69.2' Unveathered, U.S. dark gray, moderately hard.  36.5'-36.8' - SANDSTONE, moderately hard, moderately child bedded, Say U.S. light gray-tan.  37.3-37.4' - Forstlifetous G-0.3 5.  47.9-48.4' - M. SANDSTONE 47.9-48.4' - M. SO.S. S. S. S. S. S. S. S. S. S. S. S. S.	LEVATIO-	DEPTH	LEBEND	CLASSIFICATION OF WATERIALS (Postsprint)	* COAR	101 04 1117 C	REMARKS  (District stand, over their death of assessments over it improves and assessment over its improves and assessment of the interior of the interior over its i
Go.S		50	•	33.3'-69.2' Unweathered, dark gray, moderately hard.  36.5'-36.8' - SANDSTONE, moderately hard, moderately hard, moderately hard, moderately creented, very fifice, thinly bedded, 8\t\text{21} light gray-tan. Ans. 37.3-37.6' - Fossilliferou d6.7'-47' - SANDSTONE 47.9-48.4' - " 50.4-50.6' - " 50.4-50.6' - " 51.3-54.2' - " 55.4-54.9' - " 55.4-55.5' - " 57.8-58.1' - " 58.2-58.7' - " 61.4-61.6' - " 62.9-64.4' - Y 2015 64.4-64.9' - Fossil- MOX 6 16.66.9' - SANDSTONE 67.0-67.6' - " 67.6-68.0' - " 68.5-68.7' - "	#( 5 G-0.3 ED.5 L-0.9	5 6	Corton Samples for Inst 10 of hole due to freementation
		70-		T.D 720',	G-0.9		

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others or ether or ethers or ethers or ethers or ethers or ethers or ethers or ether or ethers or ether

ELEVATION SETTE CESSED CLASSIFIC FOR MATERIALS ASSET 1815. Comment of the control				A	4 COA E	901 00	REMARKS (Define the mile has death of maintains, see, M. significant	İ
33.3'-69.2' Unreachered, derk gray, soderately hard.  36.5'-36.8' - SANOSTONE, moderately hard, sod- erately covented, very (files, thinly bedded, gay) 46.5  11ght gray-tan. 3237.4' - Fostill factor 46.7-47.4' - SANOSTONE 50-45.0' - " 50.4-50.6	<b>CLEVATION</b>	<b>0</b> CPTH		CLASSIFICATION OF MATERIALS	# CCOA.	1400	Christian than Market and a start of	
33.3'-69.2' Unweathered, 41.5	•_		اب ا	727 %	<b></b> -	<del>├─</del> ं─┤		=
		75 =	1	· ·		1 1		Ш
hard.		=	(		_	' l		E
36.5'-36.8' - SAIDSTONE, Except the protection of the protection o			1 .		L-1.0	1 1		E
\$1,9-48.4\\ \$1,9-4		=	1 1	mary.	l	i I		Ε
\$1,9-48.4\\ \$1,9-4		l <u> </u>	1	36.51-36.81 - SANDSTONE.		1 1		E-
\$1,9-48.4\\ \$1,9-4		=	1	moderately hard, mod-	١.	i i	i	F
\$1,9-48.4\\ \$1,9-4		=	1	erately covented, very		1 1		F
\$1,9-48.4\\ \$1,9-4	l .	-	}	fifine, thinly bedded, Bory	45 5	1 1		F
\$1,9-48.4\\ \$1,9-4	•	Ξ	1	I LIEUT ELEVATORO BALC	l			F
\$0.4.30.6'		_	}	46.7-47.4" - SANDSTONE	G-03	-8-		<b>F</b>
7.0 70.0'. 70.0 - 10.0		] =	}	47.9-48.41 - "	Ì			F
7.0 70.0'. 70.0 - 10.0			ì	30,4030.0	l	6		F
7.0 70.0'. 20.0 I	ľ	50-	1	22.2°24.6	50.5	[		F^
7.0 70.0'. 20.0 I	1	1 =	} '	34.0-34.9; "	Į.	1	•	F
7.0 70.0'. 20.0 I			}		L-0.9			F
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DIG FORM 1836 PARYTOUS COTTONS ARE OSSOCIATE. PROJECT AUDITOR Dam MACC-25	-50	] :	7	]	1	1	* ·	F
	DIG FOR	11836	PREVIO	US EDITIONS ARE OBSOLETE.	280160	ubrev	Dam Hote TO	25

RECORD DRAWING-WORK AS BUILT

						ì
	ACTION	DATE	013	CRIPTION OF	PEVISION	
\$7 to [00 to ]		ENGIN	NEER DISTRICT, RPS OF ENGINEER FORT WORTH, TEXAS	FORT WO		
0E8:04E0 01:		F	RAY ROBERTS	LAKE		
			FORK, TRINITY			
944#R 87	E	MBAN	IKMENT, SPIL	LWAY A	AND	
			OUTLET W	ORKS		
			LOGS OF BO			
		8A6	6C-22 AND			
SEWITTED BY			INVITATION NO. DACW 6	·82·15-0025	DATE MA	R,1482
55.EF - '			CONTRACT NO DAGW 63 DRAWING NUMBER	·92.C-00	SHEET NO	stónkyce 17

TO ACCOMPANY FOUNDATION REPORT

8X-4C-26

							Hele Me. 84-4C-26	
Delli	ING LO	c •ו••	Southwestern	101	Werth	Distri	San Trees	!
1.3401451		_	200.12.10.1	10 UZE		00 017	4" Core Barrel	
A CACATION	obrey	200 - 100 DAG		ĺ	1	15 l.		
Sta seitting	CACACY		YP:		fazvünel Eting		TATION OF BAILL	
	U	SACE-C		17 (2)	1.00.00	0 74 0 F	10	
			84-4-57			_		
		347	CTERNAN		4710= 4A	040 67	160	
4 0:00CT10						1 2	Hay 72   25 Hay 72	
. THICANES	5 07 OV				AT10= 10		FOR BORING	}
4 DEPTH OF					1445 07	INSPECT	04	
1 10146 00			SS.O'	<del>!</del>	* ( 00 0		T. Hagen	ì
ELEVATION	DEPTH		CLASSIPICATION OF WATERIA		4500	***	(Digiting team among late, depth of measuring, etc., if suprintered	L
	-		0.0' to 18.8'			A	JAR SAMPLES	E
	]		CLAY-dry, lean, loose	.			A - 0.0' to 1.0'	F.
	] =	·	sandy-fine; dark gr	aytste			8 - 3.0' to 4.0'	E
[	-	1 1	prova.			_0_	C - 6.0' to 7.0' D - 9.0' to 10.0'	E
	] =	1 1	@ 0.8 becomes fat, st wet	HEE,			E -12.0' to 13.0'	E
	-	1	@ 2.31 color changes			C	G - 18.0' to 19.0' H - 21.0' to 22.0'	F
	l =	1 1	light graylsh-brown @ 8.2" becomes very s				r - 24.0' to 25.0'	Ē
<b> </b>	=	, I	much fatter, well c	-00			J - 27.0' to 28.6'	E
	٤. ٤	}	solidated, with col change to dark gray	lsh-		0	CARTON SAMPLES	E
]	= ۱۵	1	brown @ 11.2° becomes lean,	ì			1 - 33.4' to 34.3'	Ē
l	۔	1	very sandy-fine, wi	th			2 - 39.0' to 40.0' 3 - 43.5' to 44.6'	E
	=	1	color change to yell ish brown.	104.		E	4 - 51.0' to 52.0'	E
1	] _3	3					Set casing to 30.5'.	=
}	20	1				<u> </u>	Started coring at 31.5'	F
۱ ـ	-		18.8' to 26.4'			E.	(upper gravel deposit	E
}	3	1			l		cheved up core - no tecovery).	E
	=	1	SAND-fine, clayey, lo wet, silty; yellowish			G		E
1	1 3	1	brown		İ	- <del>-</del>	PENETPOHETER TEST	E
Ì	20-	1			Ì	]	26.9 to 27.4 - 50 Blovs 27.4 to 28.4 - 97 "	E
İ	=	3				H	}	F
į	=	1	26.9' to 29.0'		(		Bailed Hole to 51.3'.	E
1	3	4	GRAVEL-hard, well co	und-	l	Ĺ	Direct Measure of Depth	Ė
Ì	=	3	ed, max size 1-1/2"; clayey, lean, sandy-	fine;	1	II.	) <del>23.2</del> .	F
į	ΙΞ	∄ 、	yellowish brown		1		1	E
1		=	@ 27.0 - becones ban		l	<u> </u>		E
ļ	] =	3	vith Gravel & Sand b ding. Sand-fine to	ed-	ļ	13		E
ì		3	coarse; micaceous		1		1	F
1	ko-	Ė	Start 4" Core at 31	.5*	1	1		F
1	1 :	=	31.5' to \$4.4'	٠.	31.5			E
1	-	3			L-0.7			=
1			SHALE, moderately ha	rđ,	22.5	┦┯		E
ļ			fissile, unvesthered	l 	C-04	-1-	1	E
1			(except for oxide st ing to 33.1), non-		365	1	1 .	E
``;	1 7	3	jointed.		1.12	1	{	E
1 '	1 -	3	1	B03 1		1		E
	1	∄		** 1 6	1	-	-	E
1	40	1			{	12	1	t
}	1	∄	31.5-31.6 SANDSTO argillaceous, mode	rately	44.5	_	}	E
	-	∄ .	hard, moderately c	ement -	L-0.1	1	1	F
1	1	₹	ed, thin bedded, oxide stained.	80 X 3	4	<u> </u>	4	E
1	1 7	3	31.8-32.6 SANDSTO			13	-	E
1		∄	) 37.2.44.f Tureine	aaea				E
1.	1 -	3	with thin, very thin bedded, tan	sine, -lt	46.5	4		E
1	1 _	Ξ	gray sandstone s	cams.	L-1.0	1	į	E
1	1	∄	36.8-37.0 SAND-	80x 4			(	E
	.50	3	39.3-40.0 SANDS		<b>'</b>		1	E
1		Ξ.	39.8-40.0 Fossi		51.5	-	-{	E
j	1 -	=	41.8-42.4 SANDS	TONE	L-0.1	14	-	=
1	1	╕	42.8-43.8 "		100.1	1		E
1	-	∃	44.0-44.1			1	1	F
	1	∄	46.9-49.8 Slightl siliferous throu	y fos-	550		┥	E
-	1 -		1		in he	ile		F
1	1	3	46.9-47:3 Sanda fossil detritu	8		1.	1	E
l	1 -	긬	49.4-49.8 Very f	0#811-	1	]		E
İ	l	Ė	iferous, very ve cemented, clayat	911O	1	1		F
1	1 -	3	nodules from 49.	4 -		1		E
	_	3	1		1 .	ł	1	E
		=	T.D. 55.0		1			F
1	I	7	1 (		ı	I	I	F

						-						
ORILLING LOG Southwestern Fort Vorth D												
Aubre)	Dam			# 6414	2754 ELE	₽ ₽						
Sta 29+	O Ves	E Abub	ent C.L.		HSL HAZTVACA	<del>;</del>						
- BAILLING	USACE-C											
HOLE HO			8A+C-27									
	PILLER	Jay	Cresmean .	18 8661	ATION BRO	<u></u>						
01455104			•	14 OATE		,						
THICKNES:				# ELE	41104 70	<u> </u>						
DEPTH DA	ILLED H	TO POCK	16.9'	10 TOT	L COAE AL							
TOTAL 06			40.0'	L		<u></u>						
ersasion.	DEPTH	LESEND	CLASSIFICATION OF MATERIA (Perengalan)		\$ (00 f	# 						
- 1	=		0.0' to 20.6' - CLAY- moist, sandy-fine to	fat,	} }							
	-	1 1	coarse; very dark gra	у.	1 1							
1	=		@ 2.1' - becomes so	lt,	1 1	E						
-	-		vet ,									
@ 5.2' - becomes stiff with more coarse sand												
(lime nodules) with												
color change to gray(sh-												
mottled-yellowish brown, ,												
gray, and red.												
	-	1	@ 15,0" - loses con sand and becomes le	ITSE IAD.		E						
	3	Ė	@ 17.6' - becomes		1							
	=	3	gravelly, well roun mard, max size 1/2	oded,	1							
	=	4	t .		}							
	3	3	20.6 to 23.7 - GRA hard, rounded, max s 2",lclayey, very lea sandy-fine to coarse	VEL- izo	i	,						
l	=	3	2", lclayey, very lea	n*		Fe						
ļ	:	3	yellowish brown.	•	1	<u> </u>						
]	] 7	1	Started 4" core at 2	5.01.		<u>_</u>						
l	] =	3	26.5' to 26.7' SAND	STONE,	.]	14						
1	:	3	fine-grained, soft, friable, stained.	ten,	1	ļ						
	1 -	Ħ			250	1						
1		3	26.7' to 32.7' SHAL sandy, moderately ha	rd.	L-1.5	<del>                                     </del>						
}	1 -	∄ `	gray to brown, sligh	tly	36.5	4						
1	_	3	stained, moderately sandstone bed at 29, 29,4°.	3' to	LO.0	1						
Ì	1	‡	I .			1						
32.7' to 40.0' SHALE, L. D.3 moderately hard, dark												
Į.	gray, fresh.											
[	-	7	i		25.2	┵						
1	1	3			L-0 1	12						
1	-	7	1			1						
	-	크 .			الدعد	-{						
1	.	3 '			1	3						
1	-	₹	1			1=						
	1	₹	TOTAL DEPTH - 40.0'.									
ENG FOR	M 183	6 PAEV	IOUS EDITIONS ARE OFFICERTE.		PROFE	Aubre						
			Unvariacray "									

Holo Ho. BALC-27 Port Verth District of or Hite age research Southwestern et Abutment C.L. IGL 12 marginistrative at parity failing 350 SACE-C 8A4C-27 18. Corn of or Citizen milyonen IA TOTAL PURSTE COSE SOIES 2 IN ELETITOR SPOURS VATER Jay Creamean M DATE ONE 27 Hay 72 27 Hay 72 146 L MED. , 044. FROM 1441. 17. ELEVATION TOP OF MALE 607,03 PRUPPER 79.9° 18. TOTAL COME RECOVERY FOR SOMING"
19. SIGNATURE OF INSPECTION
REPROND T. Regen ITO ROCK 40.0 .... SCORE SALOR CONTRACTOR SERVICES CONTRACTOR SALORS S CLASSIFICATION OF MATERIALS 0.0° to 20.6° - CLAY-fat, moist, sandy-fine to coarse; very dark gray. A Jat Samples A -' 0,0' to 1.0' B - 3.0' to 4.0' C - 66.0' to 7.0' D - 9.0' to 10.0' E - 12.0' to 10.0' C - 18.0' to 19.0' M - 21.0' to 22.0' @ 2.1' - becoses soft, vet 8 @ 5.2' - becomes stiff with more coarse sand (lime nodules) with color change to grayish-' brown C Corton Samples @ 11.1' - Color charge to mottled-yellowish brown, gray, and red. 1 - 29.9' to 30.8' 2 - 32.7' to 33.7' 3 - 36.9' to 37.9' ۵ @ 15.0' - loses course sand and becomes 'ean. Set casing to 25.0°. Started coring at this depth. ы @ 17.6' - becomes gravelly, well rounded, hard, max size 1/2". Bailed hole to 37.2'. F 20.6' to 23.7' - GRAVEL-hard, rounded, max size 2",lclayey, very lean' sandy-fine to coarse; yellowish brown. G Started 4" core at 25,0'. H 26.5° to 26.7° SANDSTONE, fine-grained, soft, tan, friable, stained. 26.7' to 32.7' SMALE, sandy, moderately hard, gray to brown, slightly stained, moderately hard sandstone bed at 29.3' to 29.4'. 1-1.5 26.5 LOO 32.7° to 40.0° SHALE, moderately hard, dark gray, fresh. L 6.3 2 L-0 : 3 TOTAL DEPTH - 40.0'. IEVIOUS EDITIONS ARE OBSOLETE. 8A4C-27 Aubray Dam (TRAVILUCENT)

								Hala No. GDC-28			
		LING LO	۱ ــ ۲	Southwestern			Fort W	-			
	Aubre	Dam	Site N		10 11/E	44D TTP	C 00 017	8"A'E, 6" Don, 6" Core	7		
	I COCATIO	4160000	* 14 av 1.	100		MSL		CHATION OF DAILS	1		
	Not Sh	A			11. 434 F	alling	t <del>a s ass.</del> Model	44			
	Corps	(A p share	· meer	ng serie i	13 TOTAL NO OF OVER.   DITTURE ( IMPRIVATED						
i	1 -1-4 44	X4 3 h		ODC-28	IS TOTAL HUPOCA COAR BOXES 5						
i	A SIRECTIO	Engine	eering	Testing Corporation	18. ELEVATION SHOWN WATER See Note 2						
	(Z) 1891						_ 14	-14-72 12-7-72	_		
ı	-				17. ELEVATION TOP OF HOLE 558. 84						
	1 10144 9		_	24.0'	11. 24 to	Note 1	INSPECT	or "Remarks" -	Ť		
	ELEVATION			CLASSIFICATION OF MATERIA	u	e cone	001 00		-		
		- 1				EAY		(Drating them, more tree, depth of months of contracting, orall of appendicted			
ď	256, 84	.∄		Dark Brown Clay				Used 8" Auger from	∄		
4		'≡		-BAY			Jì	0.01-3.01	∄		
M		4	// //	Tan Clay		100	DI	Used 6"d, b, from -	∄ .		
Ŀ		Ę	A KA			100	-	Jar sample taken	∄		
E	` i	l ĭ∄				100	DZ	from shoe of each Denison sample.			
	550,34	1	444	8.51		100	D3	JAR SAMPLES	₿		
		10=	////	Tan Sandy Clay		100	ы	1. 0.0'-3.0'	≣ .		
1		12를	////	• •	1	100	D5	2. 5.01	≣ .		
- 1			////			400		3. 7.0' - 4. 9.0'			
ı		143	////	•		100	D6		3		
- [	542.34	내클	(///	16.51		100	D7	6. 13.0° <u> </u>	1		
		ا≣ور	7/7)	Tan Clay				8. 17.0			
		"∃		Ian Clay		100	D8	9. 19.0			
١	537.84	ᄚ		21_0'		100	D9	10. 21.0' — 11. 23.0'	1		
		22=	////	Tan Sandy Clay .		100	Dio	12. 25.0	∄		
ļ		Ē.,∣	////	• •	i	100	DII	13. 27.0' 14. 29.0'	∄		
- 1	533.84	143	$\mathcal{U}_{\mathcal{A}}$	25.0'				14. 29.0' -	∄		
		26∃	XXXX	Tan Sand and Gravel	İ	50	210	16. 33.0	₫		
	529.84	28∄	XXX	29.0'		75	D13	17. 35.6° 18. 38.0°	∄		
	767.01	, <b>3</b>	. 1			25	D14		3		
- 1		30		Tan Gravel and Sand				Cleaned out from	∄		
- 1		갤글	Ġ.Ÿ.			75	D15	35.51-36.01	3		
- 1		34=	165	•	*	75	D16	Set casing to 36.0' Began coring w/6"	3		
Į	522, 84	36=	44.4	36.0'				bbl. at 38.0'	∄		
		<b>~</b> =	$\equiv$	36.0'-44.9'		100	D17		∄		
		38=		SHALE, Mod. Hard, N Jointed, Laminated, 1		R-1	Box		3		
Í		40 🗒	===	(Continued) Gray, Often Sandyw/	- 1	100%   R-1	1 1	MINITED VICES VIDERE	₹.		
-		₁2 📑		Sandstone Seams.		1007		DENISON SAMPLES	∄		
1		≣		39.3'-41.5', Sand, Fir		43.0 R-2		2. 5.0'- 7.0'	∄ .		
il	513.94	" 🖥		Med Grained, Well- Compacted, Gray, Sc		1005	Box	3. 7.0'- 9.0'	≣ .		
П		<b>16</b> ∃		Thin Tan Siltstone No	iules.	1	2	4. 9.0'-11.0' _ 5. 11.0'-13.0'	∄		
		48 🖃	7. P	41.7'-42.9', Sand w/So Siltstone Nodules.	at.	48.0		6. 13.0'-15.0'	∄		
H		∃		43.0'-44.1', Sand Sear		R-3	ا ا	7. 15.0'-17.0' 8. 17.0'-19.0'	∄		
ارا		50 🗒		44. 1'-44. 5', Sandstone Well-Cemented, Mod		100%	Box 3	9. 19.0'-21.0'	∄		
绀		52 - 3		Hard, MedFine-Gr		53.0	<u> </u>	10. 21.0'-23.0' 11. 23.0'-25.0'	∄		
뷝		54 📑	$\equiv$	Sli. Friable, Gray.		R-4		12. 25.0'-27.0'	∄		
4		56 🗐		44.5'-44.9', Sandw/Si stone Nodules		100%		13. 27.01-29.01	∄		
۱ ۲		∄		44.9'-60.0'		58.0	4	14. 29.0'-31.0' 15. 31.0'-33.0' _	∄		
		58 🗒		SHALE, Mod. Hard, N. Jointed, Laminated,		Poor	Box 5	16. 33.0'-35.0'	∄		
П	498.84	ᅆᆿ		Gray, w/Sand Seams		1		17. 36.0!-38.0!	╡		
1		二二		46.8-47.5, 52.9-53.	ο,			1. 39.8'-40.8'	∄		
l		3		54.95-57.9, 58.5-60 47.8'-48.0', Fossilife				2. 43.8'-44.8'	∄		
	•	国		Zone.	<del></del>	1		3. 50.0'-50.8'	∄		
		∄		Total Depth = 60.01		1	1	4. 55.3'-56.3' - 5. 58.8'-59.8'	3		
!		#		•		1		' -	=		
			-				1	Note 1:	3		
i		🗏		1		1		Soils Logged by: A. J. Simpson,	∄		
		=					1	Trinity Engineering	Ħ		
		=				1		Testing Corporation;_	킄		
		🗐						Primary Logged By:	3		
		=				j	1	Marr, Corps of Engineers, Fort	∄		
		=				ļ	1	Worth District	3		
		∃	\	`				Note 2:	킄		
	1							Installed 4" Plastic Pipe from 560.34	3		
		ակակակակակակակակակակակակա						to 529.74 for ground-	₫		
		🗐	i					water observations.	3		
	l	ہے ا	3	l		ı	ı				

									olo No. 6DC - 28	
	ING LQ		15104	Southwestern	MITALGA	F	ort Wo	rt .	0+ 2 tme	
		Site N			11, 027 ca	754 SE	CALLIDE I	X (1		=
ot Sho	wn X	: 2,139	77:	Y: 415 255	] <del>13. =2==/</del>	MSL	* 1 611.2.	A 7104 6	- BAILL	
				• •			(odel 4			
		meers		6DC-28			COAC 00	<del></del> 1	8 ! 16	
dnity!	Engine	ering	Tes	ting Corporation	IL ELEVA	71C4 68	044D 4V1	en s	e Note 2	$\Box$
	* D			010, 7500 1551.	IL BATE	HOLE	l'ii.	14-72		
		ABVADES		36.0'			COVERY		8.84	
	PYH OF 1			60.01	19 SISHA		under	*		$\neg$
VATIO		. 26240	_	CLASSIFICATION OF MATERI			001 00 1400 E		REMARKS 1 Januar maree trees, depth ording, et al., of algorith and	
•	•	77.				***	10			
6, 84	,3		2.	rk Brown Clay			J1		8"Auger from '-3.0'	耳
1	Į, į	///A	Ta	n Clay	}			Used	6"d.b. from	3
·	Ī		•-	0.2,	}	100	Dì	_	'-38,0' ample taken	3
		11/1			1	100	DZ		m shoe of each dson sample.	' 킠
0, 34	8=	AA	8.	51		100	D3		R SAMPLES	=
}	10=	////	Ta	n Sandy Clay	]	100	D4	1.	0.0'-3.0'	킄
1	12=	<i>\///</i>		• •	1	100	D5	2. 3.	5. 0' 7. 0'	릨
ĺ	14	Y///		-	ŀ	100	D6	4,	9.01	크
			١.,		}			5. 6.	11.0' 13.0'	直
2.24	16	1/1	16	.51		100	D7	7. 8.	15.0' 17.0'	3
1	18=		T	n Clay		100	D8	. 9.	19.0'	킠
7.8.	20=		21	.0'		100	<b>D9</b>	10.	21.0' 23.0'	킠
<u> </u>	22=	7///		in Sandy Clay		100	D10	12.	25.0'	릨
	24	<b>!///</b>	]			100	DII	13.	27.0' 29.0'	=
3.84	{ ¨¨≣	****		.0'		-	D12	15.	31.0'	크
ļ	26=	1///	1"	in Sand and Gravel	•	50	<del> </del>	16. 17.	33.0' 35.0'	且
9.84	28	444	129	٠,0١		75	D13	18.	38.0	3
•	30=	119	T	an Gravel and Sand	l	25	D14	l	ned out from	1
1	32=	3	1			75	D15	35.	5'-36.0'	目
	34			•	*	75	D16		casing to 36.0' in coring w/6"	· =
2.84	1 =	144		. 0'		<u> </u>	亖		at 38.01	
	] "			.0'-44.9' KALE, Mod. Hard,	Non-	100	D17	]		=
1	38		] -	Jointed, Laminated		R-1	Box	1		
1	40		₫ .	(Continued) Gray, Often Sandy (	w/Thin	R-1	1	DET	IISON SAMPLE	<u>:5</u> 🗒
Ì	42 -			Sandstone Seams. 9.3'-41.5', Sand, l	Fine-	43.	d	1.	3.0'- 5.0' 5.0'- 7.0'	3
12 04	44 -		∄ .	Med Grained, We	:11-	R-2	i	3.	7.0'- 9.0'	1
13.94	46 -		1	Compacted, Gray, Thin Tan Siltstone	Scat. Nodules	.] 100	7 Box	4.	9.0'-11.0' 11.0'-13.0'	4
1			∄ 4	1.7'-42.9', Sand w.		48.	<u> </u>	6.	13.0'-15.0'	ŢĮ.
1	48 -			Siltstone Nodules. 3.0'-44.1', Sand S	eams.	R-3	1	7.	15.0'-17.0' 17.0'-19.0'	ll lin
1	50 -	░	∄4	4. 1'-44. 5', Sandst Well-Cemented, M		100	3	9.	19.0'-21.0'	lii.
	32 -		3	Hard, MedFine-	Graine	53. R-		10.	21.0'-23.0' 23.0'-25.0'	=
1	54 -	重	١	Sli. Friable, Gray 4.5'-44.9', Sand w		1		12.	25.0'-27.0'	
1	36 -	≣	∄	stone Nodules		100	4	14.	29.0'-31.0'	=
	58 -			4.9'-60.0' HALE, Mod. Hard,	, Non-	58. R-	0 Pa-	15.	31.0'-33.0' 33.0'-35.0'	=
8.8	1		∄."	Jointed, Laminate	d, Dark	Poo	Box	تتا	35.01-38.01	—Ξ
		<b>=</b>		Gray, w/Sand Seat 46.8-47.5, 52.9-	53.0,				RTON SAMPLE	<u> </u>
1		3	1.	54, 95-57, 9, 58, 5	-60.0.		1	2.		Ē
	-	<u> </u>	1	7,8'-48,0', Fossil Zone.				3.		Ξ
	.	貫	1	Fotal Depth = 60.0	•	1	1		58.8'-59.8'	153   153   153   153   153   153   153   153   153   153   153   153   153   153   153   153   153   153   153
	-	킠			•			Not	te 1:	=
1	).	4				1	1	Soi	ls Logged By:	=
ļ	1.	크	ļ			-	1	i.Tw	J. Simpson, inity Engineers	ng =
1		3				ļ	-	Te	ting Corporat	lon;_
1	'	3							imary Logged	By:
1	-   '	1					1		rr, Corps of gineers, Fort	
₹		뒼\							rth District	7
ľ		킠 `	١,	•					te Z:	ne -
þ		րուխակավարկակակակակակակում	١			١		Pi	talled 4" Plass pe from 560.34	, =
1		3							529.74 for grouter observation	
1		3		•		1	-			_
1	•		-							

RECORD DRAWING-WORK AS BUILT

	гТ			T							
ij											
7.50	06 40	ACTION	OATE	DESCRIPTION O	F REVISION						
		U.G. ARN		NEER DISTRICT, FORT WARPS OF ENGINEERS FORT WORTH, TEXAS	<b>ORTH</b>						
2 2+6	MED 871		RAY ROBERTS LAKE								
			ELA	FORK TRINITY RIVER, TE	XAS						
****	# \$T.		EMBA	NKMENT, SPILLWAY AND							
				OUTLET WORKS							
4411	£#10 671			LOGS OF BORINGS	3						
		8	A4C-2	26,8A4C-27, AND 6							
SUBL	4177ED 87			INVITATION NO. DACW 63-82-8-00	25 DATE MAP	. 462					
				CONTRACT NO. DACW 63-82-C-	083	SEQUEN					
ENG!	HEER			ORAWING MUMBER	SHEET HO.	1 70					

TO ACCOMPANY FOUNDATION REPORT

Nele He. 6DC-30 DRILLING LOTAL Southwestern Autrey Dam Site No. 1 MSL X23, 142, 237; Y1615, 0515ta, 120+70 Failing Model 44 6DC-30 Tricing Engineering Testing Corporation 4 TOTAL HUNBER CORE BOLES 15 ELEVATION SANUAR TATER Sec Note 2 11-15-72 11-30-72 Miterich Cincinte T# C4=835 DF #VE=84#DEN TO THE CONT RECOVERY FOR BORING 96.4 249" - C- LLED INTO #OC# \*0106 06074 07 HOLE 90.0 See Note 1 under "Remarks" SECONE SOLON CLASSIFICATION OF WATERIALS REMARES
(Delling rise, out to be, depth of
accounting, other of experiences) ELEVATION DEST. LEGEN Used 8" Auger from Dark Brown Clay Jì 0.01-3.01 Used 6" Denison 100 DI bbl. from 3.0'-551.70 5.01 46.0 75 D٤ Jar sample taken Dark Brown Clay w/Sand 100 D3 from shoe of each Lenses Denison sample. 100 D4 \*\* JAR SAMPLES See A. 100 D5 ī. 0.01-3.0 5.0° 7.0° 100 D6 2. 3. 75 **D**7 4. 5. 9.01 11.0 6. 7. 100 D8 -13.0 537,70 15.0 100 D9 17.0 Tan and Gray Clay w/ 19.0 9. Calcareous Particles 100 21.0 11. 23.0 100 DH 25.0 13. 27.0 50 DIZ 29.01 14. 31.01 100 D13 16. 17. 33.0° 35.0° 30.01 100 D14 Tan and Gray Sandy Clayw 18. 37.01 33. 0, Silt and Sand Lenses 100 D15 19. 39.01 20. Gray Clayey Sand 100 D16 21. 46.0 Tan and Gray Clayey
Grav. 1 w/Sand
Tan and Gray Clayey
Gravel w/Sand
Tan and Gray Clayey
Gravel w/Sand 100 D17 50 D18 50 D19 120 6" Denison from 40.0'-46.0' Encountered Gray Shale at 46.51 50 D20 Set 8" Casing to 510.20 48.0 Began Coring w/ 16.51-60.81 48 SHALE, Mod. Hard, Dark Gray, Thick-Bedded-6" Corebbl. at 48.0" 48.0°

DENISON SAMPLES

1. 3.0°-5.0°

2. 5.0°-7.0°

3. 7.0°-9.0°

4. 9.0°-11.0°

5. 11.0°-13.0°

6. 13.0°-15.0°

7. 15.0°-17.0°

8. 17.0°-19.0°

10. 21.0°-23.0°

11. 23.0°-25.0°

12. 25.0°-27.0°

13. 27.0°-29.0°

14. 29.0°-31.0°

15. 31.0°-33.0°

16. 33.0°-35.0°

17. 35.0°-37.0°

18. 37.0°-39.0°

19. 32.0°-41.0°

20. 44.0°-46.0°

CARTON SAMPLES

1. 49.2°-50.0°

2. 54.0°-55.0°

3. 56.0°-57.0°

4. 61.7°-62.7°

5. 66.0°-67.0°

6. 72.0°-73.0°

7. 77.0°-78.0°

8. 81.7°-82.7°

9. 86.0°-87.0°

R-9-left 1° of core in hole.

[Continued] 50 Massive, Non-Jointed, Bo Often Sandy w/Thin Sand-1 52 stone Stringers and Seams. 1009 48.0'-48.7', Scattered Tan Siltstone Inclusions. 56 Sandstone, Fine-Grained, Box Light Gray, Frinble, at: 100% 58 49.0-49.1, 49.2,50.8-51.5, 53.0, 57.0-57.2, 60.0 60 60.1-60.2, 60.8. 53.5' and 55.3', Thin 495,90 1 R-4 Fossiliferous Zones 95% 60.8 3 65.0 R-5 60.81-66.51 SANDSTONE, Mod. Hard, Gray, Fine-Grained. 68 100% Slightly Friable, Numerous Box Thin (0. 1-0. 2) Shale Seams 70.0 66.5' 66.5'-90.0' 170 SHALE, Mod. Hard, Dark 100% Gray, Thick-Bedded. , Massive, Numerous Fine-Box Grained, Light Gray Sand-76 stone Seams and Stringers.
Occasional Siltstone In-1005 78 clusions, 67.0'-67.4', Sandyw/ 80 ลก R-8 Siltstone Stringers 68.5'-69.0', Fine Sand-Box 100% stone Stringers 6 70. 3'-71, 0', Scattered Brown Silt stone Inclusions. R. 80% Box 88 90,0 466.70 90 Total Depth = 90.0 Feet

i	REVATION	DEFTH	ucro	a)
· kr.j. inger	BNQ FORM	ուժելու իլուսիսու իլուսիսա հայտահումիումիումիումիումիումիումիումիումիումի		
	,		ODIFIE	01

(40011160)

Мин	ucho	CHIEFERION OF WILLIAMS	SECOA:	IOL DA IAMPLE HO.	(Drating not mater has depth of manderney, story of appointed)
			<u> </u>	70.	***************************************
136-137-137-137-137-137-137-137-137-137-137		Dr. was desire ju	° -		Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation; Primary Logged By: Green and Marr, Corps of Engineers, Fort Worth District. Note 2: Installed 4" Plastic Pipe from 558, 50 to 520, 50 for ground- water observations.
( M	0011150	1)	· Aub	rey Da	m Site No. 1 6DC-30

Somition   Company   Com				7=	ribros	•		All Inch	han Fr		÷	Holo Ha	400.11	_
April   March   Marc		_	_					- bit :	72175	71 WA	A	. A · Da		<b>=</b>
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Second   S	Corpe	C.E.	ر داء	CCLI										
Citatemer and Citatemer and		<u>::~</u>			~~~	6DC-31	4.1.24							
Citatemer and Citatemer and	Trinity	Encl	ne	ering	Test	ine Cott	013[10]	15 4647	7-00 600				2	#
### ### #### #########################	CC) + 4 + 1 · C	~ C			_		. **** ***			<u>  1</u>			12-29-72	
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10   11   11   12   13   14   15   15   15   15   15   15   15	10114 04	1= 4	7	**	90	). O• _		) See !	fote I :	ındə r	*Re	marks"		
Spread Clay   Spread Clay			<b>'</b>			(0				<b>'</b> \$''	182			
Solution   Solution		,	7	$/\!/\!\!/$	Br	wn Clay	,		•	л	0.0	°°3.0°		-3
Second State   Seco		4-	3/		١.,			Ì	50	Dì	3.0	0'-40,0'		· 🗐
10   D   D   D   D   D   D   D   D   D	-330.38	6-	7	777					100	_				릨
10		1		///			ly Clay		100	D3	Γŧ	nsion sa	mple.	4
12		10	₹,	///					100	D4	1.			릨
15.0'   100   D6   5.   11.0'   11.0		12	₹/	///			Clay W/S	And						4
10.00   10.0	l		∄⁄	///				1	100	D6	4.	9.0	•	昌
18			₫:	111	i						6.	13,0	•	4
100 D   10. 21.0   11. 23.0   15. 11. 25.0   15. 25.0			₫.	1			y Sand w/C	lay	-		8.	17.0	•	∄
11. 23.0'   13.0'   13.10'			∄.	<u> </u>	آ			•	-		9. 10.	19.0 21.0		∄
13, 27, 0   13, 27, 0   13, 13, 27, 0   13, 13, 27, 0   14, 29, 0   15, 31, 0   15, 31, 0   17, 35, 0   17, 35, 0   17, 35, 0   17, 35, 0   19, 40, 0   19, 40, 0   19, 40, 0   19, 40, 0   19, 40, 0   19, 40, 0   19, 40, 0   19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 19, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40			₫,	.[ˈ].					_	_	11.	23.0	•	∄
Tan and Gray Silty Clay  w/lron Ore  15 D11 16 33.0 17. 35.0 18 37.0 19 0 D14 18 37.0 19 0 D14 18 37.0 19 0 D14 18 37.0 19 0 D15 18 37.0 19 0 D15 18 37.0 19 0 D15 18 37.0 19 0 D15 18 37.0 19 0 D15 18 37.0 19 0 D15 18 37.0 19 0 D15 18 37.0 19 0 D15 18 37.0 19 0 D15 18 37.0 19 0 D17 5 18 10 10 D17 5 18 10 11 0 D17 5 18 10 18 10 D17 5 18 1	532,38		₿	쌧	-22	o and G	ay Sandy C	lav	-	_	113.	27,0	•	1
Tan and Gray Sitty Clay    100	_530.38		3	44	25,	0' w/S	ilt Lenses				45.	31.0	•	
100   114   15   15   15   15   15   15   1			∄⁄	///				lay		_				3
33.0'   33.0'   33.0'   30.0			∄′	///	∤ '	/IFOE O	/ <b>-</b>				18.	37.0	į.	1
33.0'  Gray Silty Sand w/ Scattered Gravel  100 D15 1. 3.0'- 5.0' 2. 5.0'- 7.0'- 9.0' 36 39.0'- 45.0' SHALE; 39.0' 44 90 D16 3. 7.0'- 9.0' 516.38 39.0'  39.0'- 45.0' 90 D17 5. 11,0'-13.0' 90 6. 13,0'-15.0' 90 6. 13,0'-15.0' 90 6. 13,0'-15.0' 90 6. 13,0'-15.0' 90 6. 13,0'-15.0' 90 6. 13,0'-15.0' 90 6. 13,0'-15.0' 90 90 90 90 90 90 90 90 90 90 90 90 90	*	30 –	₹,	777	1				90	D14				<b>=</b>
State   Scattered Grave    100   D16   3, 7, 0'- 9, 0'	522,38	32 <b>–</b>	₫,	444	ىد	ان.		<u>.                                    </u>	100	D15	1.	3.0%	5.0'	· 📳
39,0'   39,0'   39,0'   45,0'   SHALE   39,0'-45,0'   SHALE   40   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   100%   50%   10%   10%   50%   10%   10%   50%   1		34 -	∄.	$\mathbb{H}$					90	D16	3.	7.0'-	9.0'	킠
39.0°-45.0°. SHALE, 39.0°-45.0°. SHALE, 39.0°-45.0°. SHALE, Mod. Hard, Dk. Gray Thin-Bedded-Massalve, Worcas, Sand Lenses Shale is Gray, Massive, Mod. Hard, Gray-Li, 32.2°. Shale is Gray, Massive, Mod. Hard, Gray-Li, 36.0°. Shale is Gray, Massive, Mod. Hard, Gray-Li, 36.0°. Shale, Mod. Hard, Gray-Li, 36.0°. Shale, Mod. Hard, Gray-Li, 36.0°. Shale, Mod. Hard, Gray-Li, 36.0°. Shale, Mod. Hard, Gray-Li, 36.0°. Shale, Mod. Hard, Gray-Li, 36.0°. Shale, Mod. Hard, Gray-Li, 36.0°. Shale, Mod. Hard, Gray-Li, 36.0°. Shale, Mod. Hard, Gaided, 36.0°. Shale, Mod. Hard, Gaided, 36.0°. Shale, Mod. Hard, Gaided, 36.0°. Shale, Mod. Hard, Gaided, 36.0°. Shale, Mod. Hard, Gaided, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Shale, Gray-Dk, Gray, Mod. Hard-Hard, Bard, 36.0°. Sha		36 -	₫.	H	∮ °	Catte rea	Ctaver			D17	5.	11.0'-	3.0'	1
39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 0'-45, 0' SIALE; 39, 10, 10, 21, 0'-19, 0' SIALE; 310, 12, 1	516,38	38	₫	111	39.	.01				Die				1
SHALE, Mod. Hard, Dk.   Cary Thin. Bedded. Mass:   Ive, w/Num. Lz. Gray   1   10, 21, 01-23, 01   1   1, 23, 01-		10	3		39. 39.	0'-45.0	' . SHALF O'			Die	DE	IISON S	MPLES	= =
10.21.0-23.0   10.2		12 -	1		<u>514</u>	ALE. M	lod, Hard,	Dk.	100%	Box		17.0'-	19.0' 21.0'	4
## 49.4' Silitatione Node., Hard Tan ## 45.0'-55.6'    Shale k Sinderone, Alt. Bed 50.0'   Shale k Sinderone, Alt. Bed 50.0'   Shale k Sinderone, Alt. Bed 50.0'   Woccas. Sand Lensee	510.38	44 •	1	≝	į įv	e, w/Ni	m. Lt. C	ray		1	10.	21.01-	23.0'	1
## 45,0'-55,6'    Shale & Sandstone, Alt. Beology   16, 33,0'-35,0'   17, 35,0'-37,0'   18, 31,0'-33,0'   18, 31,0'-40,0		46 -	3		43.	4' Silts	tone Node	. Har	4 i i		12.	25.01-	27.0'	螀
## Woccas. Sand Lenses   Sale is Gray, Massive,   1005   15. 31.0'-35.0'   17. 35.0'-37.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   18. 38.0'-40.0'   19. 38.0'   19.		48 -	∄		43.	0'-55.6	•		1 1		14.	29.0'-	31.0'	킙
Shale   B Gray, Massive,   100%   50x   17, 35, 0'-37, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 38, 0'-40, 0'   18, 0'' ye' shifts		50 •	킠		<u>₩</u>	le & Sar	Sand Len	it. Bec	20,0 R-3					킠
## 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  #### 199.78  ##### 199.78  ##### 199.78  ##### 199.78  ##### 199.78  ###################################		ķ2 .	4		3 <u>Sh</u>	<u>le</u> le Gr	ay, Massi	ve,	100%		17.	35.01-	37.0'	킠
Sandilona is Fine-Med, Gray   Sandilona is Fine-Med, Gray   Sandilona is Fine-Med, Gray   Sandilona is Fine-Med, Gray   Sandilona is Fine-Med, Gray   Sandilona is Fine-Med, Gray   Sandilona   Sandilona is Fine-Med, Gray   Sandilona is Fine-Med, Gray   Sandilona is Fine-Med, Gray   Sandilona is Fine-Med, Gray   Sandilona   Sandilona is Fine-Med, Gray   Sandilona   Sandilona is Fine-Med, Gray   Sandilona   Sand	ŀ	β4.	3		•	red			24.0	3				킠
\$8	499.78	56 .	∄	=	3 3	oft-Mod	Hard, G	ray-LL	1	-	38	.0' w/8'	'bit.	킠
Dk. Gray Laminated, Us- weathered  58.6'-59.4' Fossilifedus sone Soft-Mod. Hard, Calcidi. Q. 66.0'-75.4' Shale & Sandstone, Alt. Bed Woccas. Sand Leases Shale is Mod Hard-Hard, Dk. Gray, Laminated  70		58 -	₫	≣				ed		l	Co	re bbl.	at 40.0'	. 릨
100%   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 42, 3'-43, 3'   1. 43, 3'-43, 3'   1. 43, 3'-52, 6'   1. 45, 5'-52, 6'   4. 56, 5'-52, 6'   4. 56, 5'-57, 5'   1. 45, 5'-57, 5'   1. 4		ьо ·	₫	444	<u> 5</u> 2	le, Mod	. Hard-H	ard,		Box 4	ı			_=
191.18   18   18   18   18   18   18   18	1	1	∄	₹	∃ •	esthere	4			1	Π.	42.3'*	43,3'	릨
Shale & Sandstone, Alt. Bed   ONE   Shale   Sandstone, Alt. Bed   ONE   Shale   Shal	421.28	1	₫	≡	₹ .	one Soft	-Mod. Has	edus d, Cal	عبع	$\vdash$	3.	51.6'-	52.6'	킄
## Voccas - Sand Leases   56		ξ	₫	≡						Box	4.	56.5'-	57.5' 62.2'	4
Dk. Gray, Laminated   R.7   8, 75, 41-76, 47   7, 80, 9:81.9   1008	1	Į.	∄	≣	<b>=</b> =	,	Sept Ten		1	5	6.	64.7'+	65.7' 73.8'	
100% saterobservations.  465,3970		1	∄							-	- 8.	75.4"	76.4' \$1.9'	3
100% saterobservations.  465,3970		l	₫		\$				Į.	1	þo.	85.51-	86.51	围
100% saterobservations.  465,3970	1	Ι.	=	<b></b>	Ħ				1 .		Soil	e li Logge	d By:	直
100% saterobservations.  465,3970	479.98		_		75	4'			R-B		ના	alty Eng	lneering	
100% saterobservations.  465,3970		1	3					٠,			144	ting Co	rpo ratio	' ]
100% saterobservations.  465,3970		1	킙		3 7	(od. Ha	rd-Hard,	Lami-	79.0	Box				' <b>]</b>
100% saterobservations.  465,3970	1	1	ᆌ	≣	# "				1	١.	Cor	ps of E	ngineers Distric	: 🖪
100% raterobservations.	I	1	킄		1				1		Not	• <u>2</u> ;		Ħ
100% raterobservations.	[	64	뒴								plp	trom !	556.6 to	冒
465,3970 29,00 70tal Depth = 90.0 Feet 7005 9	]	86	킙		∄				100%	•	511	.6 far	ground.	
BHO FORM 1834-A	!	1	킘		₫				1		┦"	~ :		7
BHO FORM 1834-A	465.39	70	킠	F			h = 90 0 :	Fact.	100%	10-	+	<del></del>		
(moetite)   Vitorak hem one to t   one or	BHG FOR	<u> </u>	تد	<u>_</u>					neer.	<u></u>	ـــــــــــــــــــــــــــــــــــــ	Site No	, m	DC -31
	<b></b>	,,,		40017	10)				I va	, ray 1	****	11V	,	

SEMINATED BY

TO ACCON

							Halo No ADC. 1		
	THE F	∞ .	Southwestern	4 516		OPE W	arth Parity		
Aubrey	r Dam	Site N	fo. 1	11.22.	ETHIT:	E 4 2 7 18 2	" An . A . D Tor		
X-2,14	1,407	Y . 4 1	5.328: Sta. 132:00	17	131 1271 1160	4 5 5 2 5.	Territor de partic		
Corps	of En	lneer		" ::::	2000	Model	Tanasan fammishan	••	
- 24 14 A	H-1511		6DC-31 Boyd Lane	IN TOTAL OVERSEE COSE SOLES Q					
Trinity	Engli	nee rin	Testing Corporation	* 0416		***	3-6 11016 2		
œ	·~ C		***************************************			<del></del>	12-18-72 . 12-29-72	_	
				. 1074	. (44)	160+60	102.0	_	
. 10744 0			90.01	264	Note 1	under	"Remarks"		
EFEA4414				۱ ۳	150	100.00	Special territorial solutions of the special s	,	
<del> </del>		777	<del> </del>		•	<u>.</u>	Used 8" Auger from	긜	
ļ	2- <u>=</u>	///	Brown Clay		•	31	0.03.0.	die	
	4.3	<b>///</b>		- 1	50	DI	Used 6" Denison bbl. 3.0'-40.0'	liii	
_550.38		///	5.01		100	DZ	Jar sample taken	ш	
	ءٌ ` ا	<b>\//</b> /	Brown Sandy Clay			_	from shoe of each Dension sample.	Ш	
-546.26	°	<i>!}}</i>	9.0'		100	D3	JAR SAMPLES	I	
	10-	///	Brown Silty Clay #/5	bad	100	D4	1. 0.0'-3.0' 2. 5.0'	=	
	12-	<b>Y///</b>	Lenses	- 1	80	D5	3. 7.0	=	
540,38	14-	<b>////</b>	_15.0'	[	100	D6	4. 9.0' 5. 11.0'	=	
	16-	111			90	D7	4. 13.0°	=	
	ļ,,_Ē	1111	Brown Silty Sand w/C Lenses	'ay	100	D8	7. 15.0° 8. 17.0°	Ξ	
	Ξ	!!!!		•		-	9. 19.0° 10. 21.0°	Ξ	
	20 <u> </u>	1.11.		ŀ	100	D9	11. 23.0'	Ξ	
532,38	22	4,1,1	23.0'	ļ	50	DIO	12. 25.0' 13. 27.0'	=	
530.38	24-	$U\!$	Tan and Gray Sandy Cl 25, 0' w/Silt Lenses	γ	100	DII	14. 29.0'	=	
	26-		Tan and Gray Silty Cl	1	50	DIZ	15. 31.0° 16. 33.0°	Ξ	
	28 <u> </u>	////	w/Iron Ore	" i	75	D13	17. 35.01	Ξ	
	ـــــــــــــــــــــــــــــــــــــ				90	D14	19. 40.01	Ξ	
	, <u> </u>	///		- 1	100		DENISON SAMPLES	Ξ	
522,38	=	<i>!!!</i> !	_33.0'		100	DIS	1. 3.0'- 5.0' 2. 5.0'- 7.0'	Ξ	
_	M =	ŀŀŀ	Gray Silty Sand w/	ļ	90	D16	3. 7.0'- 9.0'	Ξ	
[	P6 <u>−</u>	11.11	Scattered Gravel		100	D17	4. 9.0'-11.0' 5. 11.0'-13.0'	=	
516,38	Þ# —	1.11.	39.0'	ł	-0-	<del>                                     </del>	6. 13.0'-15.0' 7. 15.0'-17.0'	를	
	ko 🚆		39.0'-45.0', SHALE 39.0'-45.0' SHALE, Mod. Hard.		40  R-1	D18	J	Ξ	
	k2 -					ļ	8. 17.0'-19.0'	4	
	ـ ا	<u> </u>	Gray Thin-Bedded-M lve, w/Num. Lt. Gra		100%	Box	9. 19.0'-21.0' 10. 21.0'-23.0'	П	
510.38	46		Sand Pockets and Le	1009	45.Q. R-2	<u> </u>	11. 23.0'-25.0'	=	
			43.4' Siltstone Node.,	Hard	100%	Вох	12. 25.0'-27.0' 13. 27.0'-29.0'	Ш	
ľ	*		45.0'-55.6'			2	14. 29.0'-31.0'	Ш	
	50 <del>-</del>		Shale & Sandatone, All Woccas, Sand Lense		R-3	-	15. 31.0'-33.0' 16. 33.0'-35.0'	ulı	
	52 <u>–</u>		Shale is Gray, Massiv Mod. Hard, Sandy U.		100%		17. 35.0'-37.0' 18. 38.0'-40.0'	=	
	54 -Ē		ered		54.0	3	Reamed from 0.0'-	1	
499.78	56 -E	ⅲ	Sandstone is Fine-Med Soft-Mod. Hard, Gra		R-4		38.0' w/8" bit.	I	
			Gray, Well Comenter		100%		Began coring w/6" core bbl. at 40.0"		
	] =	106	55.6'-64.0' Shale, Mod. Hard-Has	d.	59.0 R-5	Вох	Set \$"casing to 44.0"	1	
l	30 -		Dk. Gray Lamisated, weathered	. Va-	l l	1	CARTON SAMPLES 1. 42.3'-43.3'	I	
ll	62 <del>-</del>		58.6'-59.4' Fossillfer	tus	100%	<u> </u>	2. 46.2'-46.8'	H	
471.38	64 -		zone Soft-Mod. Hard 64.0'-75.4'	. Calc	H.C.		3, 51,6'-52,6' 4, 56,5'-57,5'	Щ	
	66 <del>-</del>		Shale & Sandstone, All	. Bed	100%	Box	5. 61.2'-62.2'	հումարիակափակավարհ	
	58 <u> </u>		W/occas. Sand Lease Shale is Mod Hard-Har	18		5	6. 64.7'-65.7' 7. 72.8'-73.8'	4	
	70 -	7777	Dk. Gray, Laminates		69.0 R-7		8. 75.4'-76.4' 9. 80.9'-81.9'	П	
l	72				100%	i 1	10. 85.5'-86.5'	1	
	=				74.0	Box 6	Note I: Soils Lossed Bri	1111	
479.98	74		75.4'		R-8	L	Soils Logged By: A. J. Simpson, Trinity Engineering	I	
	76		75.4'-90.0'		100%		Testing Corporation	1	
	18 -		Shale, Gray-Dk. Gray Mod. Hard-Hard, La			Box	Primary Logged By:	1	
	to -		nated Cale.	•	R-9	7	Marr Corps of Engineers,	di.	
	22				100%		Fort Worth District		
I. I			•		84,0		Note 21	1	
						DOX	installed 4" plastic pipe from 556.6 to	T	
	<b>%</b> -				200%	8	511.6 for ground-	1	
	33 -						waterobservations.	H	
465,39	90 <u>-</u>		90.0		100%	Box.		=	
	Ē	1	Total Depth . 90.0 F.	• •		!	•	Ξ	

RECORD DRAWING-WORK AS BUILT

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3710	DO NO.	ACTION	DATE	DESCRIPTION	OF REVISION						
	U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS										
0 C S10	MED 871		F	RAY ROBERTS LA	KE						
=			ELM	FORK TRINITY RIVER,	TEXAS	ŀ					
8010	9 67:		EMBAN	KMENT, SPILLWA	Y AND	l					
-				OUTLET WORKS		- 1					
46411			1	LOGS OF BORING	GS	1					
				DC-30 AND 6 DC		1					
SUBW	STED BY			INVITATION NO DACW 63-82-8	0025 DATE MA	K,462					
ENGI				CONTRACT NO. DACW 63- 82 . C		SECULINCE					
				DREALING WOMBER	SHEET NO.	19					

Holo Ho 356DC 32

matraction Fort Worth 1947

state and time of oil 3" bind 6" Den, 6" Core

mostly and time of oil 3" bind 6" Den, 6" Core

MSL DRILLING L Southwestern Aubrey Dam Site No. 1
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Not Shown X 2,141,310 Y 615,790
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1 month of MSL MSL Failing Model 44 356DC - 32 TOTAL WUNDER COME BOXES ---Trinity Engineering Testing Corporation 14. ELEVATION GROUND PATER See Note 2 12-30 72 1-4-73 Ørtericat Dietriete IT . EVATION TOP OF HOLE 557,05 THE SHEET OF OVERBURDEN 10 TOTAL COAR RECOVERY FOR BORING
10 SIGNATURE OF INSPECTOR
See Note 1 under "Remarks" DEPTH DRILLED INTO ROCK 18 5 60.0 CLASSIFICATION OF MATERIALS ELEVATION 0001m LEGEN J" Shelby Tube Brown Clay 100 WI 555.05 Samples 0,5 | 0.0'-20.0' | Denison bbl. Samples | 12 | 20.0'-44.0' | 13 | 36.0'-38.0' | 14 | 40.0' | 15 | 42.0' | 17 | 42.0'-44.0' | 18 | 36.0'-19.0' | 18 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 36.0'-19.0' | 19 | 3 100 Brown Sandy Clay W3 100 100 W4 100 100 WS 548,05 /19<u>.0+</u> W6 100 13 100 Brown Silty Sand 100 W7 W8 100 100 14 100 W9 16. 100 Wid 539.05 18 18.0 100 Brown Clayey Sand lzo. 100 Dι 75 DΖ 100 D3 <u>530, 55</u>|26 100 D4 Tan Sandy Clay 50 D5 100 D6 525,05 32 D7 100 Tan Sand and Gravel ost 0 Sam. 50 D8 40 Sa DQ Tan Sand and Gravel 65 D10 HALE & SANDSTONE, Pre-75 DII donimantely shale, w/num. R-1 layers and lenses of sandstone and siltatone nodules. Box 100% Shale is soft-mod, hard, med ı bedded to massive, dark gray 49 Sandstone is fine-grained. soft-mod. hard, light gray to tan, friable. Bo: 100% Siltatone Nodules are hard, 2 188 Scattered fossil shells at 54.4-54.7 and 56.8-56.9 100% Box \_59\_0 100% Total Depth = 60.0 Feet ումավորեակակակակավումակակակակակական Note 2: Installed 4" plastic pipe from 559.25 to 516.25 for groundvater observations.

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Date	INC FOC	Southwestern	For	t Worl	h		- i i i	
Au	brey Dam S	Ite No. 1	MSL					
X+2.1	41,550; Y.6	15,025	18 02 04.	222	****	41.4	T Picc	$\dashv$
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Tentrati	1 07 0v ( 0 0v = 0 C	41.0		C000 0			561.29	
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70720 00		59,0				(0.0	MEMBER THE PARK WHEN BOOK AND MEMBER WELL AT REPORTED	$\dashv$
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	= ₹///	Brown Clay	- 1	1	31	U.	ed 8" Auger fro	Ē "
	23///	, J. C	L			0	0'-3.0'	‴∃
- 1	4-3///		- }	100	10		ed 6" Denison bl. from 3.0'-	킠
	(///E		Ī	100	202	4	6,01	크
554,29	3///	7.0'			<u>~</u>		sample taken om shoe of eac	Ĺ∄
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542.29	18-3///	19.0' Tan Clay w/Calcareo		100	D8	7.	15.0'	킄
	20-3/1/	Tan Clay w/Calcareo Particles	4.0	75	D9	9.	17.0' 19.0'	ումայիավադեպես
*** **	<i>≣///</i>	22.5	ì	100	Dio	10.	21.01	且
538.79.	" <b>]</b> ///	1			_	11.	23.0' 25.0'	3
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	26-⊒////	Calcareous Particle	.	75	DIZ	14.	29.01	- File
	28 <i>⊒</i> ////	}	- 1	100	D13	15. 16.	31.0' 33.0'	Щ
	<u>,, ∃///</u>	<b>å</b>	1		-	17.	37.0	111
	<u> </u> "] //	{	- 1	50	D14	18.	39.0'	1
528. 29	12-늴///	33,01		40	D15	19. 20.	41.0' 41.5'	뒥
	y. ₹777/	1		Clean	ed	1	NISON SAMPL	es 🗏
	<u>⊒</u> ///	Tan Glayey Sand	- 1		-	ī,	3.0'- 5.0'	1
523.59	* 量////	37.7'		100	D16	2·	5.0'- 7.0' 7.0'- 9.0'	Ξ
	)38 <b>当</b> 次//	Tan Clayey Sandw/Gr	avel	50	D17	1	9.0'-11.0'	Ξ
	40 3/2//	40.0' Tan Gravelw/5	. (	75	n:	5.	11.0'-13.0'	ā
520.22		41.0'-44.0	/A/10	$\equiv$	150	6.	13.0'-15.0'	크
515.29	"=	Gray Shale		24 0	Core	7.	15.0'-17.0' 17.0'-19.0'	ակակակա
3.3.47	44 3:0:S	44.0'-45.0' Gravel,	1 1/2'	R-1	Ī	8. 9.	19.0'-21.0'	=
513.29	46-3	Max. Diam., Well	Rounde	# 100%	Box	lio.	21,0'-23.0'	7
	48-	45.01.46.01" Sand & 1 1/2" Max. Diam.,	Fine-	40.0	1	11.	23.0'-25.0' 25.0'-27.0'	-
		Med. Grn., Gray I	Loosely	49.0 R-4	1	μ3.	27.01-29.01	ق ق
	100	Compacted Very M	olst	90%	Box	14.	29.0'-31.0' 31.0'-33.0'	Ē
	52	SHALE AND SANDS	ONE,	1	Z	16.	35.0'-37.0'	Ē
ĺ	g.	Alt. Beds, w/occas.	Sand	54.0 R-3	<del> </del>	17.	37.0'-39.0'	=
	56	Shale to Gray Soft-M	od Har	1	1_	18.	39.0'-41.0'	
ļ	] 3	Laminated Unwest	hered	70~	Box 3	Se E	t Casing to 41.1 gan Coring w/6	
502,29	58-3	Sendstone is Mod. It	neru-ma n.,	29.0		1.55	L_81.44.0!	
	60-	Loosely Cemented		1	1		RTON SAMPL	
1	3	Siltstone Nodules, T at 47.5', 54.0', 58	1, 2'	Ϋ	1		47,9'-48.6' 52,0'-53.0'	-
(	ΙΞ	1		1	l	3.	55.2'-56.0'	٤
Į .	13	Total Depth . 59.0	reet	1		[		3
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DRILLING LOG Aubrey Dam Sig X12.119.11#. Y Corne of Language Trinity Engines B.teliter Datrie. MERGERS OF IS PRINTED \*\*\*\* \*\* " " CLEVATION .... LESC. 547.97 12 <del>|</del> 28日 528.97 BIO FOUR 1834-A

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"" DIG FORM 1836-A (HOSHITE)

Aubrey Dam Alte No. 1 356D-34

1 6DC-33

		<del></del>	01915104	105146	LAT-04		Holo Ho 15/1D-35		
1 P40/84	LLING (	حيل	Southwestern	to bile and tive on bit 3" Shelby & 6" d. b.					
-Aub	ey Dar	n_Site	No. 1	MS	UM FERT	CEVET	on the Succession of P		
X * 2, 1	39, 39-	, Y*6	No. 1 14, 164; Sta. 213,00/	17 111	10 AF 9 (1)	ER 1 02	HENATION OF BAILL		
Corp	s of E	nginee	rs ·				44		
L	0 (As one) 		3S6D-35		AL RUNS				
			Boyd Lane ng Testing Corporation		VATION (	ROUND	See Note 2		
	104 OF HO			14 041	£ 201.E	100	ATED ICOMPLETED		
			IN 45.0'	17 666	VATION 1	09 05 x	015 550 50		
. DEPTH	*****	470 400	* 2.0'				227, 28 AY FOR BORING 83, 3		
	CEPTH OF	~	47, 01	See ?	ote 1	under	"Remarks"		
I CEVATIO	0171		CLASSIFICATION OF MATERIA (Description)	•••	ACCOV.	90 K O	(Drating time, mores case, depth of measuring, ste, it significant		
	=	7773				WI			
}	2 <del>-</del> =	<b>/</b> //	4		İ	W2	Boring advanced = with 3" Shelby tube		
i	] <u>.</u> =	41 M	1			W3	from 0.0'-40.5'.		
1	, ≣				l	W4	Cleaned out 40.5'-		
1	6 =	<i>G []</i>	Dark Brown Clay		İ	12	Used 6" Denison		
ļ	8 =	MA	,	•		W5	barrel41.0'-47.0'.		
1	lo -≣	7/1/				W6	Set 8" casing to 45. 0"		
l	<u>ا</u> ا	##	\			13_	Encountered mois-		
546.58	∤" <u> </u>		13.0'			W7	ture at 23.0' and =		
1	ド言		•			W8 J4	-		
]	\6 <u>=</u>	<b>y</b>	Brown Clay w/Silt			w9	JAR SAMPLES 1. 2.0'- 3.0'		
1	ا ا	(#) A				W10	2. 6.0'- 7.0'		
539,58		///	_20.0'			15	3. 10.0'-11.0' = 4. 14.0'-15.0'		
1	憎≣	7777	_AU. U			W11	5. 18.0'-19.0'		
	₽₽	////				W12 J6	6. 22.0'-23.0' = 7. 26.0'-27.0'		
]	Į, I	////	Brown Silty Clay			W13	8. 30.0'-31.0'		
l	[]			1		W14	9. 34.0'-35.0'		
	肾量	////	•			37	10. 38.0'-39.0'		
l	ᆙᆿ	///				WIS	12. 45.0'		
ł	┝╸릨	////				W16	」 13. 47.0'		
	ᇩᆿ	////				18	DENISON SAMPLES  1. 41.0'-43.0'		
ŀ	[] 🗏	////				W17	1. 41.0'-43.0' = 2. 43.0'-45.0' =		
524.58	プヨ	444	35.01		i	W18	3. 45.0'-47.0'		
1	ᆙᆿ	////	Tan and Brown Sandy			W19	]		
i	ᇥ릨	////	Clay	- 1		W 20	3		
	., ∃	///X	*			110_	]		
518.08		777	41.5'Tan & Brown Sand	ı Clav		W 21	WRAP SAMPLES		
	<b>12</b> ∃	7777	Gray Sandy Clay		75%	ום	1. 0.0'- 1.0'		
515.08	44 <del>- ]</del>	Z/A	44.51			DZ	2. 1.0'- 2.0'		
S14.58	l,6 ⊒	=	4.50'Gray Sand w/Gray	/_لك	100%		4. 4.5'- 6.0'		
512,58	l≣		Gray Shale		75%	D3	5. 7.0'- 8.5'		
	₩ 📑		Total Depth = 47.0 Fee	t			6. 8.5'-10.0' 7. 11.0'-12.5'		
	=						8. 12.5'-14.0'		
	▎∄						9. 15.0'-16.5'		
	旦						11. 19.0'-20.5'		
							12. 20.5'-22.0'		
	1	l					14. 24.5'-26.0'		
	킠	I					15. 27.0'-28.5' 16. 28.5'-30.0'		
	릨						17. 31.0'-32.5'		
	3						18. 32.5'-34.0'		
	目						19. 35.0'-36.5'		
	킄						21. 39.0'-40.5'		
	크	1	•				],,,,		
		}	- -				Note I:		
	∃		•				A. J. Simpson,		
	目	- [					Trinity Engineering		
İ	=						Note 2:		
•	Ë	j		į	i	Ì	4" plastic pipe in-		
	=		,		İ		stalled from		
	1	ı					for groundwater = = observations.		
	<b>-</b>	. 1		ļ	ı		4		
	耳	ΝI					Ē.		
	∄	`			ļ				
ĺ	目	ł		ŀ	l		<b>1</b>		
	킠	ı					릨		
	4	Į	. •		j		耳		
l	_3	I		- 1		l			
	3	- 1					司		
1	<u>արտիակավաղակակարակակակակակակակակակակականու</u>			1			11. 19.0'-20.5'		
	-						<b>=</b>		

RE 37M 00 NO A ----SEVIEWED ST. SUBMITTED BY ENGINEER ---TO ACCON

Hole No 156D-35 -11411410-DRILLING ( Fort Worth Southwestern PAGILLE Auhrey Dam Site No. 1
1 Octation Chambers or finance
X x 2, 199, 594; Yabid, 164;
1 Denuting Auhrenter
Corps of Engineers
and Mrs. manner
and Mrs. manner
and Mrs. manner
and Mrs. manner
and Mrs. manner
and Mrs. manner
and Mrs. manner
and Mrs. manner
and Mrs. manner
and Mrs. manner
3 S6D-35 Failing Model 44 is 101 to house a cost sorts

is 101 to house a cost sorts

is ELEVATION CROUND DATES SEE NOTE 2

| 1 - 31 - 72 | 2 - 2 - 73 Trinity Engineering Testing Corporation IT ELEVATION TOP OF HOLE 559.58 THICKNESS OF OVERSURDEN 45.01 18 TOTAL CORE RECOVERY FOR BORING 83.3 DEPTH CHILLED INTO HOCK 2.01 See Note 1 under "Remarks"

ats | Scoat | across | Sample | Conding room, and the property of . TOTAL DEPTH OF HOLE CLASSIFICATION OF WATERIALS ELEVATION DEPTH LEGEND Boring advanced with 3" Shelby tube from 0.0'-40.5'.
Cleaned out 40.5'-41.0'.
Used 6" Denison barrel 41.0'-47.0'.
Encountered moisture at 23.0' and water at 23.0' and water at 38.0'.

JAR SAMPLES
1. 2.0'- 3.0' 1. 2. 6.0'-7.0' 3. 10.0'-11.0' 4. 14.0'-15.0' 5. 18.0'-19.0' 6. 22.0'-23.0' 7. 26.0'-27.0' 7. 26.0'-27.0' 7. 26.0'-27.0' 7. 26.0'-30.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. 26.0' 7. W1 W2 J1 W3 W4 J2 W5 Dark Brown Clay W6 13 W 7 546.58 W8 J4 Brown Clay w/Silt W9 W10 75 539.58 20.0 W11 W12 J6 Brown Silty Clay W13 W14 WIS W16 18 1. 41.0'-43.0' 2. 43.0'-45.0' W17 WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 45.0'-47.0'
2. 1.0'- 2.0'
3. 3.0'- 4.0'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'- 10.0'
7. 11.0'- 12.5'
10. 16.5'- 18.0'
11. 19.0'- 20.5'
12. 20.5'- 22.0'
13. 23.0'- 24.5'
14. 24.5'- 26.0'
17. 31.0'- 12.5'
18. 32.5'- 30.0'
17. 31.0'- 32.5'
18. 32.5'- 30.0'
19. 35.0'- 36.5'
20. 36.5'- 38.0'
21. 39.0'- 40.5'
Triatity Engineering
Tresting Corporation.

Note 2:
4" plastic pipe intialled from
for groundwater
observations. W18 524.58 35.0 19 Tan and Brown Sandy W19 Clay WZO. 710 W21 41.5'Tan & Brown Sandy Clay 518.08 DI 75% Gray Sandy Clay 515.08 44.51 DΣ \514.5B 4.50'GraySandw/Gravel 46 75% Gray Shale D3 512.58 Total Depth = 47.0 Feet <u>սունավորվորնակումարկակարհավորվորվորկակարկակարակումարիովորվո</u>

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356D-34

RECORD DRAWING-WORK AS BUILT

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_				ļ			
3 V M	00 40	ACTION	DATE	0630	RIPTION OF	REVISION	
		U, 8. ARN		NEER DISTRICT, PRINCERS FORT WORTH, TEXAS	ORT W		
9650	MC0 07			RAY ROBERTS	LAKE		
<u> </u> :			ELM	FORK TRINITY RI	VER. TE	XAS	
<b>**</b> ***	n 97		EMBAN	KMENT, SPIL	LWAY	AND	ļ
]				OUTLET WO	RKS		
****	EHED 97.			LOGS OF BOR			
		3S6D	C-32,6	SDC-33,3S6D-	34, AN	ID 3S61	7-35
SUBN	ITTED BY			INVITATION NO DACWES-			
==				CONTRACT NO DACW 63-	12 C 0	043	SEQUENCE
ENGI	MEST			DRAWING NUMBER		SHEET NO	20

						Hele No. 356D-36			
99 t	LING Kar 1°	'r Urthe ate pe			For	Worth or 2 meers			
- Au		<u>* 1 </u>			C314181	Jushelby 5"Denison	7		
1 ^ 4.		roller.	MS	**5.4.	- 1 641	CHATION OF CAILL	-{		
- Ç: 12;		# <u></u> -	11 201	alling Model 44					
	हिं हरि <u> </u>	ISAD 3	14 101		- CO-E	101EL 0	1		
Cont.	. <del> </del>	n. Tes ra graciation	15 CLC:		-04-0	1016	7		
X	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -				1 1	-29-73 1-30-73 -c 557, 88	4		
	. 162 14.0 4.61					7 FOR BORING	1		
	1-1- 25-015	45.01	Ser 1	ote_i	under	"Remarks"	1		
ELEVAT:0~	1	CLASS FICATION OF MATERIA (Description)	"	necov.	127,02	REMARKS (Dulling time, motor teas, depth of manufacturing, others of projections)	1		
					W1 W2	Drilling	1		
		Brown Clay			31	3" Shelby: 0. 0'-26, 0'.— Cleaned out	₫		
			]		W3	Set 26. 0' of 8" casing	∄		
	6-2///	! <b>\</b>			J2	6"d. b. from 26.0". 46.0". Advanced casing	3		
549.38	8	8, 5'			W5	1045.01.	3		
	10=	Tan and Brown Clay v	,, ]		W6	WRAP SAMPLES	3		
	12	Calcareous Particle			J3 W7	2. 1.0'- 2.0'	=		
543.88		14.01	1		W8	3. 3.0'- 4.5' 4. 4.5'- 6.0'	3		
	]]]]]]				J4	5. 7.0'- 8.5'	1		
'	"量///	Light Brown Silty Cla	,	İ	W9 W10	6. 8.5'-10.0' = 7. 11.0'-12.5'	=		
	*量///	,,			75	8. 12.5'-14.0' == 9. 15.0'-16.5' ==	1		
	20-3///		Į		WII	9. 15.0'-16.5'	=		
	22릨///			•	W12	11. 19.0'-20.5' =	#		
	24=3///		l		J6 W13	13. 23.0'-24.5'	3		
	,,_ <u>]</u> ////		1		W14	JAR SAMPLES	3		
529.88	3///	28, 01		100%	DI	2. 6.0'- 7.0'	1		
	28 <b>3</b> ////	Tan and Light Gray Sa	ndy	100%	DZ	3. 10.0'-11.0' = 4. 14.0'-15.0'	3		
526.88	30	Clay 31.0	]		<u> </u>	5. 18.0'-19.0'	∄		
	32-클	Tan Sand	}	100%	D3	6. 22.0'-23.0' <u>=</u> 7. 28.0'	1		
	¼ <b>-틜</b> ···	•	1	50%	D4		3		
520.88	36 <b>∄</b> ःः।	37.0'	ļ	50%	D5	9. 32.0' = 10. 34.0' = -	3		
	»=::::	Tan Sand and Gravel	$\neg$	100%	D6	11. 36.0° 12. 38.0°	3		
	∄:	1	j	75%	D7	13. 40.0'	1		
	42 🗐 🗀	Tan Sand and Gravel	Ī	50%	D8	14. 42.0' <u>=</u>	1		
513.88	<b>* 3</b>	44,0'		50%	D9	16. 46.0'	1		
	*****	Gray Shale 46.0'		100%		DENISON SAMPLES	3		
511.88	46	Total Depth = 46.0 Fe	et	100,0	2,0	1. 26.0'-28.0'	Ī		
	1					3. 30.0'-32.0'	1		
	킠					4. 32.0'-34.0' = 5. 34.0'-36.0' = =	3		
	昌					6. 36.0'-38.0' 7. 38.0'-40.0'	=		
	3			]		8. 40.0'-42.0'	1		
	111					9. 42.0'-44.0' = 10. 44.0'-46.0' =	3		
					<b>\</b>		1		
	目				1	Note 1: Soils logged by:	1		
	뒴	•			1	A. J. Simpson, Trinity Engineering	1		
	📲			1	1	Testing Corporation.	₫		
l	킄	,				Note 2:	1		
	[ ]	•				Install 4" plastic pipe	1		
				1	1	from 559, 18 to 513, 18 for groundwater	3		
	<u> </u>					observations.	3		
	1 🖥					Boring was advanced to 26.0 feet below the	∄		
}	킠			İ	i	ground surface prior	Ē		
1	🗐	<b>.</b>		}		to using drilling fluid and groundwater was	∄		
1	릨	j		1	1	encountered at the	3		
1	րովումումումումումումումումումումումումումո			1	1	18.0-footdepth.	3		
j	/ <b>E</b>	!				]	∄		

DRIL	LING(=	- 10	Southwestern	******	A 1184	ort	<b>F</b>
PROJET			Southwestern	W 4/10	A=0 11P4	بالم	3" Shelb
Aubrev	Dan	Site 1	No. 1	SE BATE	H FOR EL	CVATION.	<b>इंडरवेटी विश्व</b>
X=2, 14	0 546	V=61	4.471: Sta. 121+007	MS	L		mATIO- 60 6
IS ORILLING				F-0	##2104E	-1-14	
Corps				13 701	line M	0051.7	10010000
1 200 \$1.00	~~·~·						
1 4446 05			Boyd Lane	14 101	L hvustr	C011 0	<u> </u>
Trinky	Engl	icerin	Testing Corporation	** ***	ATION 69	0049	1110
(2)				16. BAT	E MOLE	Ti.	.20-73
7 THICKNES				17 ELE	VATION TO	- 01 -	e 556.
. DEPTH D				16 101	L CO4 E 4	COVER	FOR BOAINE
P TOTAL OF			46.01				Remark
					1 5005	BOL OF	
RLEVATION	02914	166600	CLASSIFICATION OF WATERIN	.,	SECOV.	HOLE	(Distant term
} <del></del> -	<del></del>	70	<b></b>		•		
<b>.</b>	=	MA	Brown Clay			W.	DRILLII
553.68	2 <del>-</del> =	YHI	3,01			-W2-	3" Shelb
333.00	۱.≡	1777	3.0		1	1	Cleaned
1 .	1 4=	1///	T 534. Glass			W3	31.01-46
1	=_، ا		Tan Silty Clay		•	W4	WRAP
549.68	) ° =	,,,,,,	7.0'		1	JZ	1. 0.
1	8	1///	Light Brown Silty Clay		1	W5	2. 1.1
l I	=	(///	Sur Diown Sincy Clay	•	l i	W6	3, 3,(
545.68	10-	(///	11.0'			73_	4. 4.
	),, <b>=</b>	777	<del></del>		1		5. 7.
	12=	{///				W7	6. 8.
1	14-	<i>\//\</i>	Tan and Brown Silty C	lay	Ì	W8_	7. 11.
	(``≡	<i>{///</i>	}	•	ι.	<b>I</b> 4_	8, 12,
	116-=	<i>Y///</i>				W9	9. 15.4
	l ≡	V///			i	WIO	10. 16.
<b>[</b> .	18-	///	l		l	35	11. 19.0
536,68	20-	$\mathbb{Z}/\mathbb{Z}$	20.0'		l		12. 20.1
	120 E	XXX	,			WII	13. 23.0 14. 24.5
1	تــ يررا	YYYY	}		1	W12	15. 27.0
į į		YYYY	Tan Silty Sandy Clay		[	J6	16. 28.5
	24 -=	w	1		l	W13	
i	I.≡	$\mathcal{W}$	<b>{</b>		l	W14	JAR SA
	26-=	MAA)	Į		l	37	1. 2.0
	28 -≡	XXX				WLS	Z. 6.0
l	=	XXXY	l., .,		l	W16	3, 10.0
526.68	30 =	<u> </u>	30.0'		1		
,	, =	///	Tan Clayey Sand 32.0'		<del> </del>	<u>  18_</u>	5. 18.0 6. 22.0
524.68	32 -=	1111	32.0		100%	נם	7. 26.0
}	l≡	11-11-	Tan Silm Cand		755	1	8. 30.0
1	34 =	}{  -}	Tan Silty Sand		75%	D2	9. 33
	36 =	11:11:	i		75%		10. 35
1	ſ	<b>*</b> 11 [7]			_	D3	11. 37.
518.68	ეგ –	Hiiri	38.01		100%	D4	12, 38
Į.	40 E	1	Tan Sand and Gravel		25%	D5	13. 38.0
1	[" =	****	[. <u>.</u>		ነ ነ	<b>_</b>	{
1	تے ریا		Tan Sand and Gravel		50%	D5	14, 42.
l	12		l		25%	J15	15. 42.01
512.68	44 =		14.0'		1	-	16. 46.
610.40	=		Cray Shale		100%	D6	DENISON
510.68	16 -	<del></del>	16.0'		1	<del>                                     </del>	1, 31,0
1	٤ [	3	Total Depth = 46.0 Fe		1	1	2, 33,0'
{	( =	3	(		1	(	3. 35.0
!	3	3	1		1	1	4. 37.0
1	1 3	3	1		1	1	5. 40.0
1	-	3	1		1	1	6. 44.0t.
)	1 =	1	I		1	1	Set 8" casi
[	1 =	1	(		{	1	ſ
1	قے ا	1	l .		1	1	Note 1: Solls logge
1	1 =	3	1		1	1	A. J. Sim:
1	1 -	á	1		1	1	Trinity En
1	1 3	3			1	1	Testing Co
į.	1 =	3	l		ı	l	1
1		3	I		ı	[	Note 2:
l	1 =	₫			Į.	1	Installed 4'
1	ق ا	#	1		1	1	pipe from
ł	3	3				1	511.68 for
1	-	<b>=</b>	}		1	<b>{</b> .	water obse
1	1 :	3			1	1	1
1		7 '	1.				

				Hele No. 356DC-37	
				10000	
Southwestern	MITACLA	Fo	ri K	1 1 1 1 6 6 1 d. b.	1
	M MICA	40 7774 00	7 617 37 XTR2 14	Shelpy & 6" d. b.	1
Sen 1214607 (	MSI			TION OF BUILD	٦
4,471; GIA'R	Fall	Ing Mo	fel 41.	V 01514 0 6 9	┥ .
Ng parasi	IL TOTAL	ing Mos	Sice	15 21	-{
356DC-37	14 TOTAL	-	00E 601	11 0	7
Boyd Lane Testing Corporation	IS EVEA		*****	See 14012	7
	M. BATE		1.2	0.73 1-24-73 556,68	7
44.0'	IF ELEV	41104 109			<u> </u>
2.0'	19 2/5#4	L CORE RE	EOVEST P		- 1
46.01	See N	ote l ur	ider .	Remarks 16	7
CLASSIBICATION OF MATERIA	``'	3 CCO4.	1	System mere to be specified by the property of	_
			<del></del>	DRILLING	#
Brown Clay			w2 J	in Shelby: 0.0'-31.0'	ᆿ
3,01			ш (	Cleaned outson a. D	3
		L	W) :	31.0'-46.0'.	3
Tan Silty Clay		[	W4	WRAP SAMPLES	긐
7.0'		·	32	1. 0.0'- 1.0'	크
Light Brown Silty Cla	У	-	W5	3. 3.0'- 4.5'	ուրորակարարակակավաղակակակակարհակա
•	-	) I	W6	4. 4.51- 6.01	ᆿ
11.0		} }	33	5. 7.0'- 8.0'	크
			W7	6. 8.5'-10.0'	3
I'an and Brown Silty	Clay	1 1	W8-	7. 11.0'-12.5' 8. 12.5'-14.0'	ョ
		1 1	74 W9	9. 15.'0'-16.3'	=
		1 1		10. 16.5'-18.0'	╡
		1 1	75	11. 19.0'-20.5'	3
0.0			with	11 23.01-24.51	크
•			wit	14, 24,5'-26.0'	∄
A. Citter Condu Claus		1	76	15. \$ (.0 60. )	3
an Silty Sandy Clay		1	WII	16. 28.51-30.01	=
		1	W14	JAR SAMPLES	∄
		1	11	1. 2.0- 3.0	∃
		1	7715	2. 6.0'- 7.0' 3. 10.0'-11.0'	킄
0,0'		1	W16	4. 14.0'-15.0'	耳
an Clayey Sand		٦	18	5. 18.0'-19.0'	∄
1.01		100%	ום	6. 22.0'-23.0' 7. 26.0'-27.0'	3
an Ciller Cond		75%	D2	8, 30,0'-31,0'	킄
an Silty Sand		13%	\ <u>-</u>	9. 33.01	릨
		75%	D3	10. 35.0'	3
1.01		100	D4	11. 37.0	크
an Sand and Gravel	l	25%	D5	13. 38.0'-40.0'	∄
		1	205	14, 42.01	ੜ
in Sand and Gravel		50%	+	15. 42.0'-44.0'	킄
.0'		25%	313	16. 46.0"	긜
ay Shale		1009	4 D6	DENISON SAMPLE	<u>s</u> =
.01		-	1	1. 31.0'-33.0'	_=
tal Dopth = 46.0 1		-	1	2. 33.01-35.07 5 3. 35.01-37.04	' -킄
		1	1	4. 37.0'-38.0	- =
		-	1	5. 40.0'-42.0'7	·::F
		- {	1	6. 44.0'-46.0'	=
		1		Set 8" casing to 45	<u>.⊶.</u> ≘
		1	1	Note 1:	=
			ļ	Soils logged by:	=
			1	A. J. Simpson,	<u>.</u> څ
		- 1		Trinity Engineerin Testing Corporation	
		- 1	1	Note 2:	
		1	1	Installed 4" plastic	ئے ،
		- 1	1	pipe from 557.68 t	· =
			1	511.68 for ground	· -
1		}	1.	water observation	٠
'		1	ì	1	:

					Hele He	356D-38
DRILLING LO	Southwestern	PRITALEA	For	t Wor	160	00 2 SHEETS
740/ECT \		M SIZE A	701 252	OF BIT	hclby 6	
Aubrey Dam Site	François I	MSL			ATION OF BAILL	
Not Shown		Fall	ng Mo	del 44		1 Um des vum ete
Corps of Engine	poing title)	1) TOTAL	NO 07 C	OVER ES TÀREM	11	19
	1 3300-30	14 70744	-	CORE 80	161 0	
Trinity Enginee	Boyd Lane ring Testing Corporation	•			See Note	+W-(110
Betaticar Ducen		IT ELEV				1-20-73
THICENESS OF OVERBUR		18 1014	. CO4E #	ECUVERY		
TOTAL DEPTH OF HOLE	968 1.51 45,51	19, \$16 HA	TURE OF	INSPECTO		
LEVATION DEPTH LEGS		ALS	COME ACCOV-	004.00	(Disting time, or southering, etc.	nus cor toos domino?
	Dark Brown Clay	l	- 1	WI W2	3" Shelby	
556.07 2	3.01			1		0.0'-30.0'-
4-3/	Brown Clay	į	1	W3	to 30.0' px	lor to
A E	72	1		W4	using drill Water at 20	
	8.51			_ <u>J2</u>	6" d. b. fr	
550.57 8	/\			W6	45.51.	
[\ <b>ૄ</b>	// :			-73	Set 8" casi	
12 3//	Light Brown Silty Cl	ay		W7		AMPLES =
1 3//	//λ ·			W8	2. 1.0	- 2.0' =
<b>₩</b>	<i>7</i> λ			11		- 4.5' <u>=</u>
þ6 <i>-</i> }/	//			W9	5. 7.0	·- 8.5' <u>=</u>
hs = 3/	// <u>)</u>	Ì		J5		-10.0
1 3/	//}	:	l	WII	7. 11.0° 8. 12.5°	'-12.5' = '-14.0' =
P = 1/2	//)		l	W12	9. 15.0	-16.5
}2 <b>- 3</b> //	//\		}	17	11. 19.0	'-18.0'
L. 3/	// <b>\</b> .		1	W13	12. 20.5	-22.0
533.07	// 26.01		1	W14	13. 23.0 14. 24.5	1-24.51 =
1	Tan Sandy Clay		1	J8	15. 27.0	-28.51
530 <u>.</u> 57. 28 一 <u>司</u> 点	28,51		1	WIG	16. 28.5	'-30.0'
I bo –∃ .	Tan Sand w/Gravel		100%		DENISON	SAMPLES
			-		1. 30.0 2. 32.0	-34.0
1 3.	,,,,,		100%	DZ	3, 42.0	1-44.0
1 門司:			0%	1	4. 44.0	i-14.0' '-44.0' '-45.5'  i-45.5'  i-15.0' -11.0' -15.0' -15.0' -23.0' -23.0' -27.0'
753,01	36,0'	el	0%	┪		7
la = 1.	Ann Dalla alea dans	-	F"		4	
1. 1 3.			10%	711	J	
10 =	Tan Sand and Grav	ve1	0%		JAR SAN	APLES
142=3	TAN SANG AND OFF		50%	D3	1. 2.0' 2. 6.0'	- 3.0' - 7.0'
515.07 44 =	44.01				3. 10.0	-11.0
513,57	Gray Shale	5 Fe-1	100	% D4	4. 14.0	'-15.0' '-19.0'
146	Total Depth # 45.	3 2 461	1		7. 22.0	-23.0' '-
11   1   3			1	1	8. 26.0	'-27.0' :.0' -
			1		110. 34	
il			1	1	11. 38.0	40.0
:    [ [			1		12. 4- 13. 4	6.0' 5.5'
11 1 =			- 1	1	1	
=	1		1	1	Note 1: Soils log	and hu:
!\ \ <u> </u>			- 1	-	A. J. Si	mpson,
11 1 1	1 1		١	1	Trinity E	ngineering
			- 1	- 1		Corporation.
	1 1				121-1- 7-	
			- 1	١	Note 2:	4" plastic
					Installed pipe fro	l 4" plastic m
					Installed pipe from for grou	l 4" plastic m indwater
					Installed pipe fro	l 4" plastic m indwater tions.
					Installed pipe from for grou	m indwater

	Aubre Location Not Si	of English	n Site in management in the second in the se	n
C # 2215 37-1-	.5 \$36.11	2 4 6 8 10		D 4.
;		12- 14- 16- 18- 20-		
	533.61 532,11			27 T3
	521.1	42		72.
	`	11 61 46		Gr. To
	707 711		ակակափական	
			mhunhu	

356D-38 INTERNATION Fort Worth of 2 المناوع Southwestern Dam Site No. 1 MSL ĮΤ, Falling Model 44 TOTAL HO OF OVER SMITHREES ON STARTE 356D-38 LLEA 16 ELEVATION GROUND WATER See Note 2
16 DATE HOLE 11-18-73 : 1-20-73 Boyd Lane Engineering Testing Corporation 1-18-73 ---IT ELEVATION TOP OF HOLE 559.07 POVERBURGEN 44.0 IN TOTAL COME RECOVERY FOR BORING IN. SIGNATURE OF INSPECTOR .EO INTO ROCK 1.51 See Note 1 under "Remarks"

\*\*See Note 1 under "Remarks"

\*\*Cons | Sawple | (Dering the months of th --45, 51 REWARES
(Disting time, motor from dopth of monthstring, one, is assumed.) licee CLASSIFICATION OF MATERIALS 3" Shelby tube samples from 0.0'-30.0'-Boring was advanced to 30.0' prior to using drilling fluid.

Water at 20.5'.
6" d.b. from 30.0'45.5'.
Set 8" casing to 44.0'2. 1.0'-2.0'3. 3.0'-4.5'4. 4.5'-6.0'5. 7.0'-8.5'6. 8.5'-10.0'7. 11.0'-12.5'8. 12.5'-14.0'9. 15.0'-16.5'10. 16.5'-18.0'11. 19.0'-20.5'12. 20.5'-22.0'13. 23.0'-24.5'14. 24.5'-26.0'15. 27.0'-28.5'16. 28.5'-30.0'DENISON SAMPLAIS 1. 30.0'-32.0'
DENISON SAMPLAIS 1. 30.0'-32.0'-WI Dark Brown Clay WZ W3 Brown Clay W4 J2 W5 W6 ·33 Light Brown Silty Clay W7 W۶ .14 W9 WIG J5 WI W12 17 W13 W14 26.0 J8 Tan Sandy Clay W15 28, 51 16. 28.5'-30.0'

DENISON SAMPLAS

1. 30.0'-32.0'
2. 32.0'-34.0'
3. 42.0'-44.0'
4. 44.0'-45.5' WI Tan Sand w/Gravel 100% Di 100% D٤ 0% 36.0 Tan Sand and Gravel 0% 10% J11 ուդակուկումորհակականականունակակա 0% JAR SAMPLES Tan Sand and Gravel 2.0'- 3.0' 6.0'- 7.0' 50% D3 10.0'-11.0' 3. . ամավավարկակակակակակակակակակակա 100% D4 Gray Shale 14.0'-15.0' Total Depth = 45.5 Feet 5. 7. 18.01-19.01 22.0'-23.0' 26.0'-27.0' 32.0 9. 34.0 10. 11. 38.0'-40.0 44.0 12. 45.51 13. Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation. Note 2: Installed 4" plastic pipe from for eroundwater observations.

Hale No.

DRILLING Y: Southwestern Fort Wor W SIZE AND TYPE OF DIT S Shelby 6" dab. Aubrey Dam Site No. 1 MSL Not Shown Failing Model 44 Corps of Engineers 356D-39 IS ELEVATION GROUND MATER MANE OF DRILLER Trinity Engineering Testing Corporation 11-16-73 IS DATE HOLE 1-17-73 ----Grenticat Cincrines IT ELEVATION FOR OF HOLE 560,61 THICKNESS OF OVERBURDEN 45, 51 16 TOTAL CORE RECEVERY FOR BORING DEPTH DAILLED INTO ROCK 1.51
TOTAL DEPTH OF HOLE 47 01 See Note 1 under "Remarks" S TOTAL DEPTH OF HOLE REWARES
(Desting two, water term depth of weathering, attack to sentitions) RECOV JAMOLE CLASSIFICATION OF WATERIALS OFFTH LEGENO WI 3" Shelby tube WZ samples from 0.0'-Dark Brown Clay Jì 34.01. W3 6" d.b. samples 556.11 from 34, 0'-47, 0'. W4 Set 8" casing to 46.0".

Boring was advanced to 34.0" prior to using drilling fluid. Brown Silty Clay W5 . W6 using drilling fluid. <u> տեսոնուրուրոյնակափոփոփոփոփոփոփոփոփոփոփոխո</u> J3 WRAP SAMPLES
1. 0.0'- 1.0' W7 12 1.0'- 2.0' 3.0'- 4.5' W8 3. 14 4.51- 6.01 W9 7.0'- 8.5' WIO 8.5'-10.0' 6. 8.5'-10.0' 7. 11.0'-12.5' 35 12.5'-14.0' WII 9. 15.0'-16.5' W12 10. 16.5'-18.0' 22-J6 11. 19.0'-20.5' W13 12. 20,5'-22.0' W14 13, 23,0'-24.5' 14. 24.5'-26.0' **J**7 27.01 533,61 15. 27.0'-28.5' /// Tan Sandy Clay W15 16. 28.5'-30.0' 532,11 W16 17. 31.01-32.51 Tan Clayey Sand 18. 32.5'-34.0' J8 W17 DENISON SAMPLES
1. 34.0'-36.0' WIR 2. 36.0'-38.0' DI 3. 38.01.40.01 4. 40.0'-42.0' 100% DŽ 5. 42.0'-44.0' 6. 45.51-47.01 D3 521.11 75% Tan Sand and Gravel A jar sample was 85% D4 taken from the shoe Tan Sand and Gravel of each denison D5 90% barrel run. 33% J14 JAR SAMPLES 515.11 46 -100% D6 2.0'- 3.0' 6.0'- 7.0' 513.61 Gray Shale Total Depth = 47.0 Feet 48 3. 10.0'-11.0' 14.0'-15.0' 18.0'-19.0' 5. 22.0'-23.0' 26.0'-27.0' 30.0'-31.0' 8. 36.0 9. 10. 38.01 40.0 11. 42.0 12. 13. 44.01 44.0'-45.5' 14. 15. 47.0 Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation

RECORD DRAWING-WORK AS BUILT

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	1 1							
4 V LI	00 NO.	ACTION	DATE	DESCRIPTION	F REVISION			
_			Y ENGI	VEER DISTRICT, FORT	WORTH			
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				FORT WORTH, TEXAS				
		RAY ROBERTS LAKE						
-				FORK, TRINITY RIVER, T				
9040	44 67'		EMBAN	NKMENT, SPILLWAY	AND			
				OUTLET WORKS				
	12 754 976				0			
••••		_		LOGS OF BORING	5 N.D. 7001	. 70		
		8S6D-36,3S6DC-37,3S6D-38,AND 3S6D-39						
SUB	MITTED 67			INVITATION NO. DACW 63-B2-B-00	25 DATE MAI	3, MB		
				CONTRACT NO CACW63-42-C-		SEQUES		
7.5	-NEES			CRAWING NUMBER	SHEET NO	ໄດ້		
				1	OF	41		

TO ACCOMPANY FOUNDATION REPORT

DELLING LOC Southwestern Aubrey Dam Site No. 1 \_MSL संबंधकारकारकारकार के अकट DAMCO 1150 Corps of Engineers Tright Carrentes Terrine Corporation Brettiete Cottente. \_ -----twice-ett or oversuneen serra soulles mis oocs 15.0 12,0° m 27,0° c. shurrier or margorace ----\*\*\*\* Cont Dat on Ogustos DRILLING 0,0'-9,0', 1"Shelby 9,0'-17,0', d"d.b. 17,0'-27,0', NX-core. Setub at 9,0', WI J1 BI JZ WRAP SAMPLES
1. 0.0'- 2.0'
2. 6.0'- 8.0'
3. 22.2'-22.9'
4. 23.5'-24.4' WZ 100% D1 DZ 90% JAR SAMPLES 1. 2.0'- 4.0' 2. 6.0'- 8.0' 100% D3 100° D4 3. 11.0° 4. 13.0° 5. 15.0° 6. 17.0° 1007 1 22.0 R•2 Set 8" casing to the 17,0° depth. Ūĸ. Note 1. Soils logged by: A. J. Simpson, Trinity Engineering 100% 27.0'
Total Depth # 27.0 Feet ᆙᆿ Testing Corporation. ruluuluuluuluulu Note 2: Installed 4" plastic pipe from 650.0 to 631.0 for ground-water observations, ENG FORM 18 34 PREMOUS CO-TIONS AND INDICETE Aubrey Dam Site No. 1 3560-40 IMOBILIED FRANKSIETER

e)							Nale No. 354C+41
	LINCL	∞c	Southwestern		Fort	Worth	::";
A		Site	No. 1	17. 62.	- 4 7 C B	CEVATA	Shally and 4 Core
X	143.3	25.	No. 1 Y • 616, 330		MCO	1250	terapher to the second
		cinee		·· :::			(e  11
Trini	ty Engl	Bil	154C-41		** 1104 6		94165 2
2000		-61-01	inc Testine Corporation	4 041			2-13-73 2 15-73
	11 4" 41	****	49.0		V & T-04 T		ne 665, 20
	401= 00 H		10.0' 59.0'	**	41446 4	. 101046	ten er "Remarks"
fittation		496En			166	12000	Special tool men per owners
304.70	1	7//	O.S. Brown Clayer S	_ عد	<u> </u>	BI	DRILLING:
		W	Red Clayey Silty Sand		l	WI	0.0'-9.0': 3" Shelby
660.20	녴	XXX	5.0'			봤	19.0'-49.0'1 NX.Cor.三
	] 4릘					₩ <del>1</del>	49.0-59.0': 4" Core
1	ᆌ	***	4		2.0	B2	-All recovered NX.
ŀ	10-3		1		7.0	ВЭ	Core Samples were
ł	12=		Red and Orange Sand		50 %	٠	cardboard core boxes
1	내를	• • •	(Cemented)		14.0		Set 6" casing to 49,01
	16.				0%	١.	depth. Sand washed
647.20	10=	<u>::::</u>	18.01		18.0		fluid.
	20=		Tan Sand		19.0	B4_	JAR SAMPLES
	22	••••		ļ	0%	•	1. 2.0'-3.0' 2. 6.0'-7.0'
	2,3		,	1	23.0'	BS	BAG SAMPLES
	١,,]				0%	•	1. 0.0'- 1.0'
	28				28.01	ľ	3. 8.0'- 9.0'
		•		1	29.0'	B6	4. 18.0'-19.0' 5. 23.0'-24.0'
	3		!	- 1	٥%		6. 28.0'-29.0' =
	2			- 1	33.0'		8. 38.0'-39.0' =
	7				34.0'		WRAP SAMPLES
- 1	<b>"</b>			- (	0%	•	1. 1.0'- 2.0'
	"클			ŀ	38.0° 39.0°	118	100 400 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	40 ₫			- 1	١		CARTONS:
ļ	42-쿨:				43.0	•	1. 52.5'-53.4'
`	41급.		Tan Sand		44.01	В9	BOXES
.	"급				50 %		1. 49.0'-54.0' 2. 54.0'-59.0'
617, 30	"-₫	=	47.9' 49.0' Gray Shale W/San	d	49.01	OYS	Note 1:
]	50-		Shale, Dk. Gray-Black,			Box	Soils logged by:
612.10	52 -=		Mod. Hard. Massive, 53.1' Occas. Sandy Zor	w/	100%	ī	Tricity Engineering
	54-≣		Shale, Lt. Gray, Mod.	Hard	54.01		-3
- 1	56 - <del>-</del>		Massive, Calc., w/occ Sandy Zones	•••	100%	Box 2	Primary logged by:
606.20	58 - <b>=</b>			_	59.01	_	Fort Worth District,
	69- <del>]</del>		Total Depth of Boring =	.,			Note 21
-	킠		The mobile of porting a	~~`` <b>`</b>			2" plastic pipe installed from 666.2 to 616.2
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	4						servations.
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	* "Remarks"	
÷	REMINED THE MENT HAVE AND AND AND AND AND AND AND AND AND AND	
詽	DRILLINGI	
判许	Tube 9.0'-49.0': NX-Gores and 2" Split-Spoon 3 49.0-59.0': 4" Core-3	
$\overline{u}$	. 3	
37	Ore Samples were placed in TETCO's	
•	cardboard core poxer	
	Set 6" casing to 49.0' depth. Sand washed	
٠	Away with drilling	
•	JAR SAMPLES: 1. 2,0'-3,0' 2. 6,0'-7.0'	
B5	BAG SAMPLES	
93	1. 0.0'- 1.0' 2. 7.0'- \$.0'	
86	[4. 18.0'-19.0' -]	
•	7. 33.0'-34.0'	
82	8. 38.0'-39.0' 9. 43.0'-44.0'	
•	WRAP SAMPLES:	
38	13: 38: 38: 3	
•	3; 47; 9'-48; 5' CARTONS: 1, 52,5'-55,4'	
•	BOXES:	
y•	2. 54.0'-59.0'	
<u>VY</u>	Note la	
.ox	A. J. Simpson, Trinity Engineering Testing Corporation	
100	Primary logged by:	
2	Marr, Fort Worth District,	
	Not. 21	
	2" plastic pipe installed from 666.2 to 616.2 for groundwater ob-	
	eervations.	
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47	Dam Site No. 1 354C-4	1
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PRILLI	NG LOG	Southwestern	Fort We	0117	_	P-121	
Aubrey	Dam Site No			i.	TATION !	SHIPLUY, IN & 4	<u> </u>
X = 2. 1		616, 150	MSL	, e ( a	13114	and the section	-
Corne	Cocineers		DAMCO	713	50		
11.0	Engineers	354C-42	* 2237.75	_		1 5 1 7	
	Factorering	1 354C-42 tanion Testing Corp.		***	VO# *41	En See Note 2	$\dashv$
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(C) + 1 4 1 1 2 1	- D		17 ELEVATIO			e 665 00	$\Box$
	00 015 APVAGEA	13.0	10 TOTAL CO	-	*****	/en sense 31 6	-
	14 e/ mb\ E	55.0'	See Not		under	'Remarks"	_
		Crystisic Fallen de prijábil	·   188	*	***	Special the man six bearing	-
661.00	<del>-`- -,;,, -</del>	1,0' Brown Clayer Sa	nd -	-			ᆿ
BBITAN	, <b>3</b> ///	99.50		1	W1	<u>orilling;</u> 0.0'-13.0', 3" shølt	,, <u>,,,,,</u>
- 1	. ∄///∤	Red Sandy Clay	- (	ŀ	<del>ૄય</del> ા	Tube	≐∃
657, 30	1=}//A-	<u> </u>		•		13.01.50.01, NX.Go 21.01.41.01, Split.	"'∃
- (	· = ////	Tan and Orange Clay-		ŀ	W4.	Spoon Samples at	╡
\	<b>3///</b>	Sand w/Iros Ore an		. [	W5	5' totervals.	. 릨
653.00		73.0' Ligalte Partic		ŀ	¥6. ¥7.	50.0'-55.0', 4" Cor Drilling fluid was u	₽,,
- E	"量///		!	- [	ابيا	below the 10.3'dep	.th.∃
649.00	2 量////	Red and Gray Clayey	Sand 1).	ابق	Bl. B2	Set casing to 50.0"	킠
		13.0'-45.0'		- 1	ia Shelb	WRAP SAMPLES	
1	<u>。</u> 温:::::	Tan and Brown Sands w/Layers of Loose			Box	1. 0.0'- 2.0' 2. 3.0'- 4.0'	∄
ľ	3	Cemented Sandaton	·, j-	1		3. 4.0'- 5.0'	
ľ	"글		20	۱ ۾	В3	4, 3,0'- 6,0'	
(	20를			.و.	L	5. 7.0'- 8.0' 6. 8.0'- 9.0'	-
- {	,, 3		μ.	_		7. 9.0'-10.0'	=
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1	₩		30	.01	l	JAR SAMPLES	Ξ
	"늴		11	·c.	25	1. 2.0'- 3.0' 2. 6.0'- 7.0'	=
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- 1	. ∄:::::		138	· ö	86	BAC SAMPLES:	_=
: 1	<b>"</b> 量	*	ſ		1	2. 12.0'-13.0'	-
1	**		Jo	7.	]	3. 16.0'-21.0'	=
	ا::::I		وبرا	į. oʻ	l	4. 25.0'-26.0'	=
			12	1,0	In.	5. 30.0'-31.0'	
	[**]::::]		]6	3%	29.017		=
617-00	(4급:::::		6	3.0	Box	· <b>\</b>	🖥
· · · ·	<b>#</b>	45.01-52.71	j		la	BOX 1: 5.0'-55.	٠ -
	الله ال	Shale, Dk. Gray., M	assive, 6	0%	Bos	CARTONIO	-
1	l "###	Soft-Mod. Hard		0.0		51.8'-52.7'	
ĺ	'*====	Siltstone Nodules, f		1-1		Note 1:	
حدومها	52	52.7' Tan		00%	à∞	Il Solls Logged By:	- 3
	الله (	52.7'-55.0' Shale, Gray, Mod.	Hard. 9	5.0	,	A. J. Simpson, Trinity Essines	ring
\$22.00	1	h Massive often San	ty f		1-	Testing Corpor	atlog.
1	]"量	w/Num. Sand and	Seed-		1	Primary Logged	By:
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l	3				1	Corps of Engin	8875 pylos
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Aubtey	Dam 5	ite N	٠. ا		H ALLES	784 EGE;		2051138.77	<del></del>	-
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Trinity	Engin	بشئت	T	tin Corporation	4 2076	***	117	5-73	1014 to 71	. –
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1 1	'급		T.	n and Brown Clay	- }		₩3	JAR SAN	PLES	
	4=		5.	s:			W4	2. 4.0	. 3.0° . 7.0°	3
291.46	٠킄	7777	1			_	7		.11.0° .14.5°	1
) }	.3	////	1.	n Sandy Clay	1		WS	5. 18.0	-19.0	4
] }	,,,=	////	1		}		₩ <u>\$</u>		.23,01 .27.01	
l l		////	1		[		777	RAG SA	APLES	adanladadadadadadadada
582.96	" ≣	////	1,	4.0'			ME	1. 14.5° 2. 16.0°	-16.0	크
F	14	08	4 1	4.0'-18.0' Limestone Gravel,		100	쌟	3. 17,0	-18.0	₫
]	16=	-	1.	Weathered, Tan At	od.	100	끎		.20.5' -21.0'	. 🗐
528.96	18-	24	-10	.0' Hard	•	100 100	-15 W9	WRAP SA		3
]	20=		300	ale, Tan and Gray ered, Soft w/Num.	Weath. Fine		Œ		2.0	3
	\     		3 (	Gen. Soft, Friable,	TAD	185	Ab	3. 3.0	4.51	1
{ !	24-		1,	Sand Pockets 2.01 Ironstone Nods		<b>₩</b>	WH.	5. 7.0	i. 6.01 i. 8.51	뒼
ļ !	<b>126</b> Ξ		∃_	Red, Hard.		9		6. 8,5	1.10,6°	킠
	J. 3	* 757.0	-	1.2'-28.7' Sandato Fin. Grain, Soft, F		100	77	8. 12.5	1,14,01	킄
	F =	₩		Tan, Weathered, Oz Stained.	t. :	100%	1		'-20.0' '-22.0'	4
1	30-		310	2.5'-90.6'	<b>n</b>	R-2		11. 23.0	٠.23.5١	∄
1	32 T		-	nate and Sandstone, dominantly Shale w	Num.	100%			1.24.01 1.24.51	=
1	34		7	Layers and Lenses Sandstone and Siltet	01	25-6-	Box 2		ole out fro	
l	36 -			Nodules.	••	R.3	[ [	24.5'-27. casing to	0' and set 27,0'.	' 킄
}	38-		3			100%	Box			킄
i	10		3_			40.0 R-4	,	UA HARA	ring with	,,, 쿸ੋ
1	اً. قايدا			30.5'-90.0' Shale and Sandatone	, Pre-	1005	Boz 3		el at 27.0	
1	1,1	$\equiv$	∄,	dominantly Shale w	//Num.	1 .			SAMPLE	5 릨
1			∄	Layer and Lenses Sandstone, Scatter	ed	45,0°		2. 33,	**34.3	크
i	100		3	Siltatone Inclusion Fossil Shells.	s and	100%	Box 4	3. 38,5 4. 41,1	1-39.21 1-42.71	4
}	48-		₹.	Shale is Soft-Mid. I	lard,	1		5. 47.0	11.48.0°	<u> </u>
1	sc-		3	Med. Bedded to M Dark Gray, Unwer	thered	R-6		7. 58.	51.51.5° 11.59.0°	3
1	52-		=	Sandstone Is Soft-M Hard, Lt. Gray,	DQ.	11005	Box 5	8. 60.1	51-61 81 51-67.51	3
1	54-		₫.	Fine Grn., Friabl		155.0	1	10. 71.	51-72.51	7
1	56-		3	Siliatone Is Hard To		R-7			, - 76.6'   '- 81.9'	ョ
1	58-		=	Fine Grain and H	ard.	86%	Box	13. 84.	31.85.31	킠
1	60-		=			60.0	1		XES	ոկավափակակա
1	42		3			R.S	_	1. 27.	0'-31.9'	킠
}						64.0			21-43.51	
1	***		1			R-9	Box	4. 43.	51-49.5' 51-55.0'	3
1	166-	$\equiv$	∄			1007	۱,	6. 55.	01-62.11	ga որդուխակոսիականակակակ
1	68-	重	3			87.0	<u> </u>	7. 62. 8. 68.	1'-68.0' 0'-73.6'	711
	70-	₩	∄			]R-10	Box	9. 73.	4'-80.Q'	貫
1	72-					1009		10. 80.	0'-\$6.0'	뒴
1	74-					74.5 R-1	¥	Note 1:		킠
}	76-	重	∄			1	) Box		mpson,	킠
	78-	畢	∄			80%	1,	Trigity	Engineerl	: 4
1	1	<b>F</b>		79.0'-79.4' Fossi	Record	79.0 R-1			Corporati	<u>,                                    </u>
1	1.0.	$\blacksquare$	3			1	-1	Creen !	Marr	=
	82-	⇟			٠.	83.5	Box	Corps	f Enginee orth Distr	re,
)	144	≢	3			]R-1	" ["	Note 21		=
}	86-	₩				100	,	-Installe	d 4" plast m 597.8t	de
-	==	1				1	11 PA	for gro	indwater.	
286.	26 90.	₽	≡	90.01		100	š  <u>`</u>	Obsesv:	tions.	
1	ı	3		Total Depth = 90.0	Feet	ł	1_	٠ان		
	PM 18:		-	*** ***						

46 Mr. 354C-42	DRILLING LOG CONTINUES OF THE PROPERTY OF THE	<u>. ९ ೧</u>
or 2 septit	Transfer Control of the Control of t	1177
	THE THE PARTY OF T	
THE COLUMN		
10001190000	356DC-50 H total britis cont sales	
<u> </u>	Bord Lane in constant See Note 2	
Note 2	116.21	73
662.00	1 towards or grandoppe 14.0' m com tot attaches 596.95	
·· 31 · ·	to secure desired to the secure and	
27kg** 0001049	CLEVATION DEPTH CECEN CLASSIFICATION OF MATERIALS ALLE ALLE ALLE ALLE ALLE ALLE ALLE A	
the own hos days of		<u>-"</u>
NG:	Tan and Brown Clay	
.0', 3" Shelby =	I JAR SAMPLES	7
0.0', NX-Core	591.46 4 2. 6.0°- 7.0°	-
1.0', Split.	6-1//A 3. 10.0'-11.0'	-
rvale.	Tan Sandy Clay W5 4. 14.0'-14.5' 5. 18.0'-19.0'	_
5.0', 4" Core		_
the 10.5'depth. =		
int to 50.0' - 클		1
SAMPLES:	14.0'-18.0' 100 14 2. 16.0'-17.0'	- 4
: i:8; = =	1, = 4 6 1 timestone Gravel. 100   B1   3, 17,0' 15,0'	4
'- 5.0' =	578.96 18 = 2 4118.00 Hard 100 131 3. 20.50-21.00	
1. 6.0	18.0.27.0 IGO WO WRAP SAMPLES	
:	ered, Soft w/Num. Flas [100 7.53 1 2. 1.01. 2.01	- 7
'-10.0' -	122 - See See Petable Tan Nasi-AW101 a a	_
::::::::: - <b>클</b>	22.0' Ironstone Mods., 100 Atlant 5, 7.0', 8.5'	-
'-46.2' '-46.8'	26 - Red. Hard.	_
'-47.4'	In Trace Fin. Grain, Soft, Friable, I fin   0 to 1 to at	3
MPLES:	Tag, Weathered, Ox. 14976 - 14, 10,01-20,01	1
7: 7:0'	10.5'-90.0' R-2 11, 23,0'-23,5'	_
(10.5) 目	Shale and Sandatone, Pre- 1009 12. 23.51-24.01	-
MPLIS,	Layers and Lyases of   15 01 Box   15 01	
37-12.07	Sandatone and Silistone R-3 2 24.5'-27.0' and set	```-
o'-:::.o' - 를	100%	
31-26.01	<del>       </del>	- 1
.o'-31.o' <b>=</b>	30.5'-90 0' Now Started corung with 6	^ }
0'-35.6' =	Shale and Sandatone, Pre- 100% 3 core barrel at 27.0".	1
3	Layer and Leases of 45.04 1. 27.05-27.55	
: 5.0'-55.0' -	46 34ndetone, Scattered R.5 2. 33,3'-34,3'	
יואס 🖹	Fossil Shells. 100% 4 4, 41, 71, 42, 71	_
·····	Med. Bedded to Massive, 50.0	_
, 를	Dark Gray, Unweathered, R. 6 7. 58.01-39.01	-
Simpson,	Sandstone is Soft-Mod. 100% Bon 8. 60.8'-61.8' Hard, Lt. Gray, Fine-V. 5 4. 66.3'-67.3'	1
ty Engineering	State Gra., Friable.	
ag Corporation	Silistone is Hard Tan Belough 7 1 111 75.41-76.41	-
ry Locard Byr.	58- Flae Grain and Hard. 86% Sox 13. 84.3'-85.3'	يَ
of Engineers.	60,00 6 14. 89.00-90.00	_
Forth District	R-8 BOXES	
뎔	377 Z. 31.9'-37.2'	
2"만만 클	44 0 3. 37.2'-43.5' R-7 Box 4. 43.5'-49.5'	4
m 65).0	7 5, 49,5'-55,0'	-
servations.	100% 6. 55,01-62,11	Ė
_3	70 8. 68.0°-73.6°	=
	Box 9. 73.6'-80.0'	-
<b>a</b>	72 100% 8 10. 80.0'-86.0' 11. 86.0'-90.0'	-
4	74 Note 11	4
킠	76 Solls logged by:	į
	78 Box A. J. Simpson, 78 Trinity Engineering	
<b>=</b>	79.0'-79.4' Fossilierous 79.0' Testing Corporation	٠
폌	Plumary to gree by:	
킠	1117. Green & Mar: Specific of Engineers	, =
릨	84-13 10 Fort Worth District	ي. ٠
4	100% Note 21 Installed 4" plastic	_
<u> </u>	88.0' Box pipe from 597.8to 5	16.
ուկոսիուկարակակակարարակա	Rold II for groundwater	
킙	Total Depth = 90.0 Feet	7
=	ONG FORM 1836-A 100 - 10-10 1000 1000	

							Halo Ha 15 61		
DRIL	LING LOG	٦-	Southwestern			rt.W	10th   10th 1		
410000	Dam Si			IL SALCH AND AND ON ONE TO, COUNT. P.S. C. AS.					
E . SEATON	11	-	503 614001	NISL NISL					
X12.	137,814	<u>, Y</u>	613, 819; Sta 773,000.						
Corps	of Encin	***			ANCO			***	
			35-51						
			Bill Stanton		* * **** * *				
11000		C.C.	Testing Corporation	-			110-11110		
Ø		.~		_		_	2-22 72 12 27 7	-	
	100 0-100	****	7.8		*****				
	4118 1114	_	17.11	7 54	*****	100016	****		
* ****	***		25.0				"Remar. s"	_	
\$1. EV & THE	*****	****	(LaguriCafide 6) walfari	**	3560	*****	(Protest 1954 and 1955 sec-		
		۰							
I	, ≝/	///	Brown Silty Clay		100_		3" Shelby tube sam-		
585.66	<del>* =                                  </del>	44	2.0'		100	WZ	ples 0.0'-7.8', and	' -=	
	L,3/	$//\lambda$	Tan Sandy Clay		100	153	13.0'-21.0'	_3	
1	<b>'∃</b> //	///	, 411,		100_	11.7	JAR SAL'PLES	=	
581,36	ر⁄⊑۔،	U	6.3'			7.7	2. 6.0. 7.0	-3	
579.46	. #7/	ZA	Zas Tan and Brown Cla	y w/	188-		2. 6.0'- 7.0' 3. 9.0'-10.0'	= =	
	<b>•</b> ∃ ∘	יסי	Scattered Grayel		L	<u> </u>	4. 14.0'-15.0'	ᆿ	
1	10 <del>- 3</del> 3	6.9	7.8'-11.8'			13	3. 18.0'-19.0'	3	
575.86	``∃<	<u>ٽ</u> ,٩	Limestone Gravel, Mo Hard, Weath., Tan	/Nu <del>n</del>	عبنيا	<u> </u>	6. 22.0'-23.3'	3	
	12-		Clay, Lenses, Tan a		Rich		WRAP SAMPLES	անավավակակակու	
	l⊒≅	三	11,8' Stained.		0		1. 0.0'- 1.0'	3	
	"''≣≣		11.8'-20.5'		100_		2. 1.0'. 2.0'	=	
i	16-		Snale, Weath, Tan, an		001-	13:2-	3. 3.0'- 4.0'	ᆿ	
<b>!</b>	l ≢≣		Gray Soft, Mausive S tered Tan Sand Patks		100	75.5	4. 4.0'- 5.0'	=	
l i	<b> *</b>   =		and Lenses		100	115	4. 7.0'- 7.8'	3	
567, 16	20-3		20.51		100	W10	7. 15.0'-16.0'	-3	
	=		20.51-25.01		189-	WIL	8. 16.0'-17.0'	Ξ	
l	"	=	Shale, Gray, Mod. Ha			76	9. 17.0'-18.0'	-	
	24.=		w/Occasional Sard/a	nđ	1		10. 19.0'-20.0'	.=	
562.66	==	=	Sandstone Seams		75.5	7815	]11. 20.0'-21.0' 12. 23.0'-24.8'	3	
1	26-늴		Total Depth > 25.0 Fee	•				뒴	
1	اقا						Settub at 7, 8' and	Ē	
]	I				•		Cleanedoutto 9, 0'.		
1	I≓		i				9,0'-13,0', and	-	
1	I∄						21.0'-25.0'	_=	
1	mfunhuduu		Note la Soils Logge				on, Trinity Engineer	106	
1	-∄			n. Primary Logged By: Green & Marr 🚅					
t	∄			. Fort Worth District.					
1	I		Note2: Boring advan					=	
1	ا ا		that depth,	AUG WI	**		***************************************	Ξ	
Į .	1 🗏					1		=	
			L				100.0		
EKC FORM	1836	*	5 CM Francis and Gallon ETE				m Site No. 1 35	51	

## RECORD DRAWING-WORK AS BUILT

370	00 NO.	ACTION	DATE	DESCRIPT	ION O	REVIS	ON				
		U.S. ARM		NEER DISTRICT, FOR RPS OF ENGINEERS FORT WORTH, TEXAS	RT W	ORTI	4				
9831	<b>L</b> ACE 07			RAY ROBERTS L	AKE						
-			ELM	FORK TRINITY RIVE	R, TE	XAS					
0040	A 971	1	EMBAN	KMENT, SPILLW	AY	AND	)				
				OUTLET WORK	S						
4641	E419 94:	LOGS OF BORINGS									
			<u>,3840</u>	·41,3\$4C-42,3\$6	<u>SDC</u>	-50	AND	35.51			
SUBN	ILTTED BY			INVITATION HQ DACW63-82-			MAP	1,1982			
	<u> </u>			CONTRACT NO DACWES-82.	· C · C	2083		SEQUENCE			
ENGI	NEER			DREWING NUMBER		SHEE	T NO	NO			

TO ACCOMPANY FOUNDATION REPORT

DRILLING : Fort W h or i Scattmentern Aubrey Dam Site You! NSI Distriction of the later of the first the To see the course course of the course of the course course of the course course of th Corps of Engineers 35-52 Trinity Engineering Testing Corp. 121:00 Zitatien Cietamia \_ ••• ••• ••• 11 ELE ASSIST TOP OF WALE 568, 34

12 TOTAL CORE RECEIVED FOR SOURCE
12 LEARTHUR OF INTERCTOR

See Note 1 under "Remarks"

14.1 ACCORE (SOURCE OF CORE)

14.1 ACCORE (SOURCE OF CORE)

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14.1 ACCORE (SOURCE OF CORE)

14.1 ACCORE (SOURCE OF CORE)

14.1 ACCORE (SOURCE OF CORE) \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 17.5 ----1,5 ----CLASSIFICATION OF WATERIALS ....... \*\*\*\*\*\* Boring was advanced to 15.0° prior to using drilling fluid. Brown Sandy Clay 2.01 WL Brown and Tan Sandy Clay
w/Iron Ore
6,0'
Brown and Light Gray Sand
g,3' Clay w/Iron Ore
Tan Clayey Silty Sand w/
Gravel 566.34 W2 Brown and Tan Sandy Clay -11 WJ Water at 12.5'. All samples taken with 3" Shelby tube, 6.0' Brown and Light Gray Sandy W4 J≥ 562.34 except B2, which is WS 560.04 a washed sample. B1 WRAP SAMPLES WRAP SAMPL

1. 0.0'- 1.0'

2. 1.0'- 2.0'

3. 3.0'- 4.5'

4. 4.5'- 6.0'

5. 7.0'- 8.5'

6. 11.0'-12.5' W6 W7 J4 17.5 **B2** 550.84 7. 12.5'-14.0' դրորույույուրուրույուրույույույույուրու - 2 549,34 Gray Shale 15 BAG SAMPLES
1. 8.5'-10.0'
2. 15.0'-18.0'

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0' Total Depth = 19.0 Feet 3. 10.0'-11.0' 4. 14.0'-15.0' 5. 18.0'-19.0' Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation. Note 2: Groundwater was encountered at 12,51 ENG FORM 1836 PARTIOUS EDITIONS ARE DESOLETE 35-52 Aubrey Dam Site No. 1 IMODIFIED) FRANSLUCETTI

DRILL	ING (	: "	Southwestern	MATALL		ort Wo	1   Hell
*****				19 14 EE	40 TTP	0/ 911	3" Shelby
Aubrey		Site N	lo. I	MS		EANIGH	2+04 W (184 # 147)
X+2, 131	3,455	Y=6	12.795	11-27-1	PACTURE		MATION OF BAILL
Corps o		incer	•		lling_M		
-611-0	4 0 030 m		ag ente!	1 304	14 14 14	di vice	3 1
			3S-53 Boyd Lane				
Tripity	Engir	cerio	Testine Corporation_	IL ELEV	**************************************		
**************************************			024 F104 7401	n 9111	1 more		23-73 1-23-73
				** **	ATION TO		
-				16 107	AL COME R	ECOVERY	FOR 80046
70744 061			4,5'	See	Note 1	under	"Remarks"
			CLASSIFICATION OF WATERIN			001.00	*******
PEATLO	*****		(Deserver)		- £764.	1,000	Chiefford part, were total people of
<del></del> -	<del></del> -	לללל			<u> </u>	WI	Used 3"Shelbytube
- 1	ι, Ξ		!		l i	W2	for all samples.
1	Έ,		Brown Sandy Clay w/0	Gravel	1	1	,
- 1	4=					W3	WRAP SAMPLES
l	Ξ	(///)			[	W4	1. 0.0'- 1.0' 2. 1.0'- 2.0'
555,37	6-Ξ	<b>Y///</b>	7.01			JZ	3. 3.01- 4.01
* EFFECT	• <u> </u>	7777			1	W5	4. 4.5'- 6.0'
i	°=	////	Brown and Light Gray			W6	5. 7.01- 8.51
ŀ	10-=	////	Clay w/Scattered Gra and Calcareous Parti		1	73_	6. 8.5'-10.0'
l	≣	////	_	cies		W7	7. 11.0'-12.0'
549.87	吐	1///	12.51		{		8. 12.5'-14.0'
- 1	14.=		Light Gray and Yellow Weathered Shale w/S	ilt	}	W8	9. 15.0'-16.5'
l	∵ ≡		Layers	•••	Į	14_	JAR SAMPLES
546,37 545,37	16-	$\equiv$	16.0' Gray Shale w/Sandston		ł	<b>₩9</b> ~	1. 2.0'- 3.0'
272121	18.		<del>-</del> -	nses/	_		2. 6.0'- 7.0'
- 1	<b>'</b> °=	1	<del></del>		1	1	3, 10,0'-11,0' 4, 14,0'-15,0'
	=		Total Depth = 17.0 Fe	et			
	Ξ	3			1		BAG SAMPLE
- 1	-=	3	Į.		1		1. 16.5'-17.0'
l	_=	1	[		I		Note 1:
1	=	<b>3</b> .	1		1	1	Soils logged by:
	-	i *.				1	A. J. Simpson,
	=	1	1		1	1	Trinity Engineering
		1			1 .	i	Testing Corporation
	Ξ	4			1	1	Note 2:
	=	1			1		Boring was strange
	-	3	i		1	1	to 170 ant deption
	_ ا	3			1	1	out using drilling floor
	ակավավակա	1	1		1	1	and grandwater wit
	=	Ė			ì	]	marantered som no
		3			l	1	1
	1 =	1	1		1	1	depth.
	1 =	#	1		1	I	1000
					700/EC1		

Southwestern Beiltime Loc Fort Warth Cort Wo 60) MIII m 5 mes. Aubrez Dem Site No. MSL become restant of the section of X . 2, 139, 150; Y . 612, 635 IN B BELIEFER FREE BE BEIT Falling 1500 Cerre of Engineers dodel 44 Sant of Sant Waterbach Southwestern . 83 Vanca Trinity Engineering Tasting Corn. See Note 3.9.73 Sucur Carate See Note 2 N. 8414 ---- 4 3-9-73 1-21.11 40.0 358. 70 1-23-73 e torst eine strouter spe boome s institut of miserror See Note 1 under "Remarks" ----562, 37 "STATE OF ST 40.5 ... ..... 4.1 Alle 150 J" Shelby tube Smples from 0.0°.

22.0°

Drilling fluid was utilized from the ground surface down and the ground surface down and the ground surface down and the ground surface down and the ground surface down and the ground surface down and the ground surface down and the ground surface down and the ground surface down and the ground surface down and the ground surface down and the parties of the ground surface down and the parties of the ground surface down and the ground surface down and the ground surface down and the parties of the ground surface down and the ground WI Used 3"Shelbynh Gray Clay WZ JI W3 for all samples. for all sample.

WRAP SAMPLE

1. 0.00-1.0"

2. 1.0-2.0"

3. 3.0-4.0 4.0"

4. 4.5-6.0"

5. 7.0-8.5"

6. 8.5-10.0"

7. 11.0-12.0"

9. 15.0-16.5"

JAR SAMPLE

1. 2.00-3.0"

2. 6.0-7.0"

3. 10.0-11.0"

4. 14.0-15.0"

BAG SAMPLE

1. 16.5-17.0"

Note 1:

Solls logged by:

A. J. Simpson,

Trinity Engineering

Testing Corporation.

Note 2:

botton as shared to the read depth. W4 341.7 W) 72 W5 W6 W4 13 Brewn Clay w/Calcareous W7 in in in ws WB 14 339. 22-Tan Sandy Clay W4 526. 37 Tan Sand and Gravel initerial influence MILLE Gray Shale Total Depth + 40.5 Feet Dam Site No. 1 35-53

1836-A (HOSHIED) **~** 33.54

Aubrey Dam Site No. 1

Destance Loc Southwestern Fort Worth . . . . . . . . . . . Aubrey Dam Site No. Wal ..... X . 2, 140, 160, Y . 612, 640 Falling 1300 Corpe of Engineers Trinity Engineering Testing Corp. See Vote 2 13.9 73 Mitter Contrate. T ELEVATION TOP OF OOLS IN 19704 CORE OFCOVERY FOR OR IN DESIGNATION OF MITTEETON 558.45 46 0 -----See Note under Remarks ..... DEPTE | 18081 ----3" Shelhy tube WI Samples from 0.0'-Gray Clay 7 1 552.9 WZ 32 w) 33 Particles and Scattered Gravel W4 3 4 ws W6 3 6 W7 26 531.75 26,7 Tan Sandy Clay 37 527.45 31.0 Tan Sand and Gravel 42-Tan Sand and Gravel Ē 512.45 511.49 Gray Shale W9 48 ակակակակակակակակակակակակակարարակակակարակակա Total Depth # 46.5 Feet water was not encounted ared above that Jepth. 1836-A (#00:1110) Aubrey Dam Site No. 1 35-55

BRILLING Aubier L Trinity E -\*\*\*\*\*\*\*\* -----\*\*\*\*\*\*\*\* 2. 550.7 4. 6. 10. 12 14. 16. 12 20\_ 22. 24-530. 2 26-28. 527.7 10. 32 36. 518.7 38-42-513.7 44.

\$7 W 00 W

0444 07

SUBMITTED ENGINEER

TO-ACC

BRILLING LOG Southwestern Fort Worth BRILLING LOG Southwesters Aubrey from Site 10, 1 brey Dam Site No. MSI. Her members as: ९८ व्यवस्थानसम्बद्धाः स्टब्स् X . 2, 140, 180; Y . 412, 640 elling 1900 Falling 1300 Corpe of Engineers - Edite of Linearia and or best in the part of the control of the contr Trinity Engineering Testing Corp. 3.9.73 3.9.73 @\*\*\*\*\*\* O=\*\*\*\*\* --------40.0 See Note | under | Remarks ----94 PTR \$014 ES #19 04C See Note 1 under Note 1 under "Remarks" -C1100 05 01750145 leess. \*\*\*\*\* 1881, 1872. J" Shelby tube Gray Clay 3" Shelby tube \*1 Samples from 0.0'-Samples from 0.0'. Gray Clay 550.7 32.0 JI 30.0 Boring was advanced to 20.0° prior to using drilling fluid Drilled out and took Shelby tube samples 30, C'-43, O' ակավումարակավումարդությունակարակակարմակակավումակակական Wrap Samples
1. 0.0'- 2.0'
2. 4.0'- 6.0'
3. 8.0'-10.0'
4. 12.0'-14.0'
5. 16.0'-18.0'
6. 20.0'-22.0' W) Wrap Samples
1. 0.0'- 2.0'
2. 4.0'- 6.0'
2. 6.0'- 8.0'
4. 10.0'-12.0' Brown Clay w/Calcareous Particles and Scattered W4 Brown Clay w/Calcareous Particles 3 4 # 4, 10, 0°-12, 0°
# 7 5, 12, 0°-14, 0°
# 8 7, 16, 0°-18, 0°
# 9 7, 16, 0°-18, 0°
# 9 9, 20, 0°-22, 0°
# 10 11, 26, 0°-28, 0°
1 7 7 7. 24.0'-26.0' 3. 28.0'-30.0' W5 WS Jar Samples
1. 2.0'- 4.0'
2. 6.0'- 8.0'
3. 10.0'-12.0'
4. 14.0'-16.0' W6 5. 18.0'-20.0' 6. 22.0'-24.0' 7. 24.0'-26.0' 8. 26.0'-27.0' 530, 2 527, 7 28 26, 5' Tan Clayey Sand 25.0 37 47 5. 18.0'-20.0' 26.7 Tan Sandy Clay 221.25 6. 22.0'-24.0' 7. 26.0'-28.0' 8. 30.0'-32.0' 7. 40.0'-40.5' W11 Jar Samples
1, 2,0'- 4.0'
W12 1, 0'- 4.0' Tae Sand 527.45 Tan Silty Sand Tan Sand and Gravel ш 518. Tan Sand and Gravel 38.0 II0.1. 41.0'-43.0' ىن Gray Shale 7 42 42-Tan Sand and Gravel 513.7 43.0 J11 Note 1: Soils Logged by.

A. J. Simpson
Trinity Engineering 54 Gray Shale W9 Note 21
Drilling fluid was
willisted in advancing the poring from the upper from the provided in advancing from the poring from the provided from the provid Total Depth = 46.5 Feet Note 1: Soils logged by: A. J. Simpson Trinity Engineering Testing Corporation STANDARD PENETRATION VALUES
Depth Per Foot
38.0-39.5
38.0-39.5
South Note 2:
Doring was advanced to 20.0 feet below the ground surface prior to using drilling fluid and ground water was not encounted exed above that depth. Note 2:
Boring was advanced
to 30.0 feet below
the ground surface
prior to using drillleg fluid and groundwater was not encountered above that RECORD DRAWING-WORK AS BUILT DESCRIPTION OF REVISION 1834-A (#00:11E01 374 00 NO ACTION DATE Aubrey Dem Site No. 1 35-55 Aubrey Dam Site He. 1 U.S. ARMY ENGINEER DIETRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT, SPILLWAY AND **OUTLET WORKS** \*\*\*\*\* \*\*\* \*\* LOGS OF BORINGS 3S-52,3S-53,3S-54,3S-55 AND 3S-56 SUBMITTED I INVITATION NO GACWES-82-8-0025 DATE MAR, 1982 CONTRACT NO DACWES - 82 - C - 0083 ENGINEER SHEET HO

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O ACCOMPANY FOUNDATION REPORT

OPILLING LOG Southwestern Fort Worth # #16 000 1100 01 WE ! THE TIP MSI. में अन्यस्त्राम् (साहत्यांक रक्तः) Failing 1500 15 \*\* See Spread Agrico in allower the spread of the service to the serv u ta'in monte that sails 0
Is therefore those sails See like 1
Is therefore those sails See like 1
Is therefore those sails See like 1
Is therefore those sails See like 1
Is the sail sails to the sail 29.7 s total coop of cover on some s sear total or more cross See Note 1 under Persarks Stead 191 to Original ------549,5 540.5 536.5 526.5 eurface prior to using drilling fluid and groundwater was not encountered above that dripth.

| Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | Company | ENG FORM 18 16 secures to trent and emertic -

	ING LOG	***	Southwestern	Tanta		Fort	Wor	th 00 2 140 1
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	Dam Site			א אנו				1134 W 1454
	of Facine			DAN	ACO :	torl	<u>ct 129</u>	50
- क्यांन	4		354C-58				·	31
tentar's	4777		Will Manton	11 111	147104	***	***	See Note 2
			estine Corporation	14.007			11.3	10 110-1111
	w (3-er-		*** ********	· * * * *	V & T 10-5	***	-4.8	631 10
	1 00 00.0000 11,00 m10 0		4.0'	- <del>19 191</del>	AL CO.	985	****	pa ppmqa 73 5 v
	P1= 07 =01.E		70 0'					"Remarks"
54.EY47+04	eco   1646		Craffigic Tales de Beach	*****	366	1	#**I	Spinore and many per many or
	77	7	. ab. Basses Claused		100	古		3" Shelby tube
	, <u>3</u> //		ark Brown Clay w/ Scattered Gravel		وفليا	4	<b>~~</b>	aamples 0.0'-21,0' ==
627.0		D 4	.0'		100		닖	I. 2.0'- 3.0'
-	<b>'</b> '==	==4.	0'-7.0' Shale, Seve	erely	160		<b>!!!</b>	2. 6.0'- 7.0'
424.0	<b>'</b> ===	<b>⊒</b> .≀	careous Nods. and	v/Cal- Scalt.	1100	داء	الــة	3. 10.0°-11.0° - 量 4. 14.0°-15.0° - 量
	•= <del> </del>	≣,	7.0' Gravels	/	188		W5	5. 18.0'-19.0' - 클
[	الله الله	= 31	ale, Weath., Tan	nd	100	ىل	Υ6	BAG SAMPLES
1	I <b>i</b>	===	Gray Massive, Nun Fine Grained Pocke	1. Tan	100	T	W7	1. 4.0'- 5.0' 2. 8.0'- 9.0'
[	" ]		Lenses.		180	+	W8	3. 16.0'-17.0'
1	" <b>=</b>	≡			100	4	14	WRAP SAMPLES
1	u-				10	4	kioj	2. 1.0'- 2.0'
عبدتها	<u>]</u>		5.0.		18	Li.	15_1	1. 3.0'- 4.0' - 크
ļ	<b>.</b>	<b>=</b> !	8.0'-40.5' hale, Dark Gray, S	.n.W.	, 12	П	WIZ.	4. \$.0'- 6.0' 5. 7.0'- 8.0'
l	<b> </b>	==1-	Hard, Med. Bedder	i to	120		אוזא	6. 7.0'-10.0'
	" <u> </u>	=	Massive Scatt. For Frags., often Sand	•11	1	-1		7. 11.0°-12.0°
1	u-  =		w/Occas. ss Seam	and	10	- "	Box	9. 13.0'-14.0'
1	26-		Siltatone la fine-er	ained,	R.		- 1	10. 15.0'-16.0' =
1	<b>1. . . . . . .</b>		Lt. Gray, Soft-Mo- Friable w/Shale St	reaks.	"1 "	`	_	12. 19.0'-20.0'
1	"₹	≡!			150			13. 20.0'-21.0'
1	** =				12	×	Box 2	Cleaned out hole at
1	»===	=			R.	' [		to 21.0'.
1	Ju ===	▦.			84	×		Started coring with
1	, <u>3</u>	7	15, 3! Siltstone Nodu	les	نخا	يا	<b>.</b>	4" core barrel at
1	<b>"</b>	≕			R.	٦,	Box 3	21.0'.
1	"=#				90			3
330.5	重义	₩.	40,5'-53.2'		-  f2	3 6		CARTON SAMPLES 3
Text.	102			y, soft-	92	5 I	Box	
Ì	1 =::	::::1	Sandstone, v. shall mod. hard, v. friab	e, gray	۱ ار هم	٦,	4	2. 27.8'-28.7' 3. 32.8'-33.9'
-	T B				Į,			4. 37.5'-38.3'
1	16 司:	٠	46.8'-47.0' Siltsto	n•	68	١		5. 43.1'-44.0'
Į.			nodules		-	- 1		7. 51.7'-52.6'
1	16A				R	<u></u>	Box	8. 53.5'-54.4' == 9. 59.3'-59.8' ==
į.	<b>.</b>	::::	-4.91			×0%	5	10. 63.7'-64.4'
577.1	4 ∄≟		53.2' 53.2'-70.0'		- 1 -	.s		1 69.1'-70.0'
l	霍当	<b></b>	Shale and Sandatone	, predo	m√`,	20%		BOXES 3
l	*6 = 3	-	inately shale w/num sandstone lenses ar	d layer			Вох	1. 21.0°27.3' 2. 27.3'-32.8'
ł	50-		Shale is sandy, mod	i, hara,		<u>q</u> _	6	3. 32.8'-40.5'
	<b>L</b> , <b>1</b>	ш	Sark gray, med, be- Sandstone is fine-g	dded.	- 10	00%		4. 40.5'-47.3' 5. 47.3'-55.5'
1	1 🕸		oft-mod, hard, lig	ht gray,	- 6	0	ļ	6, 55.5'-59.8'
1	r i		riable. 55.5'-56.0' Fossil	scne. h	urd.	-10	Box 7	7. 59.8'-65.7' 8. 65.7'-70.0'
1	_M-≣					00%		[
ı	66 =		1		(1	-11	i_	1
	k, ∄		i			00%	Box	1
561.	∄ _]。		70.0'		!?	30	Ť	<del>                                      </del>
<u> </u>	ずす		Total Depth = 70.0	) Feet			1	Note 1: Soils logged by:
- [	13		Į.		- I		l	A. J. Simpson,
- 1	- 킠						1	Trinity Engineering
	4		1		- 1		1	Primary logged by:
	ق ا						1	Green and Marr,
1	]		1		- }		1	Corps of Engineers,
- 1			1		1			
١	-		1		Į		1	Installed 2' plastic
- 1	4	l			-		1	pipe from 631.8 to
1	mhadadan	i	ì		ì		İ	water observations.
1			1					1 4
-	1 1	1	1		į		1	1 4
	-≣							
بيا	<u> </u>	_ـــــــــــــــــــــــــــــــــــــ	J				<del>-</del> -	Dam Ste No. 1 354C-58
SHC (	OCH 1836	-A 110011	1101		,	Αu	brey	Dam Site No. 1 1 354C-58

Holo No 1616 66

Autrey Dam Site 7

FERTIFICATION CONTROL OF THE PROPERTY AND THE PROPERTY Trinity Engineering Deterien Comernes 4 TIMEANELL OF OVERPUREE P.S. L 1014L DEPTH OF 30 1 2 3 3 1 24-1 \$20, <u>01</u> 30-32-<u>=</u> 36-38-17127 42. <u>.0</u> 48 50 20. 20. 21. 52-54. 56 51 TA 58-62-(H-) 66-\*\* 579.01 <u>համասկարևակավատակավարկու</u> MG FORM 1834-A

#01#E	Holo Ho. 7510.59									
Fort	Worth by Or									
SL										
AMCO Model	1250									
200.00.00.00.00	100 100 000 3									
	eseres 8									
410 -010	1-5-73									
164 1100 100 00 0114 Coal accou	e 631 10									
444744 07 10104	tor red sense 73 5 for "Remarks"									
1/2 P.										
	The same of the sa									
100 MI	3" Shelby tube samples 0.0'-21.0'									
100 11	→ JARSAMPLES =									
100 DI	2. 6.0'- 7.0'									
سلاهاند	3. 10.0'-11.0' =									
100 W3	5. 10.01.19.01									
100 106	BAG SAMPLES									
100 W	-  2. 8.0'. 9.0' .=									
100 W9	3. 16.0'-17.0'									
100 MI										
100 ml	-1 2. 1.0°. 2.0° E									
100 WI	너 4. 5.0'- 6.0' ㅋ									
100 WI	1 24 (10.4 4.0)									
	6. 9.0'-10.0' 7. 11.0'-12.0' 8. 12.0'-13.0'									
100% Box	1 13.0'-14.0'									
1 R-2	10. 15.0'.16.0' =									
	12. 19.0'-20.0'									
107. 80 80x	Cleaned out hole at									
R-3 2	21.0' and set casing									
84%	Statted coring with									
Xe.	4" core barrel at 3									
R-4 Box	11.0°.									
90% 400 R-3	1 3									
1 1	CARTON SAMPLES									
92% Box	1. 24.8'-25.7' 2. 27.8'-28.7'									
8.0 4 R-6	3. 32.8'-33.9' 4. 37.5'-38.3'									
1 1	5. 43.1'-44.0' T									
68%	6. 45.7'-46.6'									
710 R-7 Box	8. 53.51.54.41									
100% 5	10, 63.7'·64.4' ·									
R-6	1 49.11-70.01									
100%	1. 21.0°.27.3' =									
. Sec Sex	]2. 27.3'-32.8' 📑									
R-9	14. 40.51.42.31									
62.0	14 45 61-69 81									
R-10 Box	7. 59.81.65.71									
100%	· 65.7'-70.0'									
R-11]										
700	1									
13-1-	Note II									
1 1	Soils logged by: A. J. Simpson,									
} }	Trinity Engineering									
1 1	Primary togged by:									
	Green and Marr, Corps of Engineers,									
1 1	Fort Worth District									
	3									
<b> </b> -	pipe from 631.8 to									
1 1	610.5 for ground.									
1 1										
	· 3									
$\perp$ $\perp$	<u></u>									
Aubrey De	m Site No. 1 354C-58									

081	LLING LOC	ין :	Southwestern		1 Wor	16	Male No. 354C 50
		_			400 TV	2 05 01	Prisheling, NX of Care
· Grein	27	==;	1612, 541,514, 6+75				deline at built
1	129, 24 of Engl	incel	10	I DA	MCO	14~441	1950
-	100		354C-59	" ***	1.7.	W.	
			Bill Stanton	10 707	at myses	* ****	0e/81 9
Trick	X-23-25	9.510	Bill Stanton r Testing Corporation				See Note 2
					E MOLE VA1100 7		2-17 72 12-21 72
	15 00 0+12 101/10 mt					+164ve	7 700 000id RR C
	H 91 0 00 TH		10.0	76 546	Atues .		der "Remarks"
(LEVATIO	-		Christication of particip		3445	115	- demanel
ا	1-1	<del>, ;,</del>			<u> </u>	<u> </u>	
l	1.₹	///	Brown Clay w/Iroa Qu Gravel 2,5	r <b>•</b>	100	WI W2	3" Shelby tube samples 0.0'-3,0'.
646.51	1 '3		2,5'-9.0'		100	AIL.	and 9,0'-15,0',
)	*章	宀	,		100	Var.	Set tub at 3.0' Cleaned Hole at 3.0'.
ŀ	14	中	Limestone, Weathers Tan, Mod. Hard	d,	X-3	<u> </u>	4.0'.
	1.3	中	}		40%	-22-	Used NX-size core bbl.
640,01	າ ສ-	☱	9.0'-12.0'		100	WS	4.0'-9.0'
}	10-3	$\equiv$	Shale, Weath., Tan,	Soft	100	n	. Used 4" core bbl
627.81	12-3	$\equiv$	w/Scat. Hard Cale.	Nods,	100	B2 W4	15.0'-70.0' Set 6" casing to 15.0"
	<b>!</b>	$\equiv$	12.0'-29.0'	/	100	W3	JAR SAMPLES -
	) ≝	$\equiv$	Shale, Solt-Mod. Har	4,	100_	-44-	1. 2.0'- 2.5'
	1	☴	Med. Bedded or Ma Dk. Gray w/./um. F	oolve,		1	2. 6.0'- 7.0' - 3. 10.0'-11.0'
	<b>"</b>	≡	and Lenses of Sand :	bas	,	Box	
	120-	≡	Sandstone Sand to Fine-Med. Gi		يعبعيا	Į i	BAC SAMPLES -
	]]]]	罥	Well Compacted Gra	ıy.	1	1	1. 2,5'- 3.0'
		$\equiv$	Sandatone la Soft-Mod		30%		2. 11,0'-12,0' -
	<b>"</b>		Hard, Fine-Med. G: Well Comented, Gra	rayus, Iy	25.00	Box	WRIP SAMPLES -
	*-	₩	Friable.		R-4	2	2, 1,0'- 2,0' -
20.01	20-3	≕	Siltstone is Hard, Ta- 29.01 17.11-28.01.	a at	100%	{	3. 9.0'-10.0' 4. 12.0'-13.0'
20.01		☶	47.0'-40,0'		13.6* (A.)	<del> </del>	5. 13.0'-14.0'
	``≢≣		Shale, Laminated, Mi		R-3	1	(
	<b>*</b> *		Rard, Dk. Gray-Bla Calcareous, w/Num		100%	Box	1 -
	×		Pockets and Lenses,	Send		١,	<b> </b>
	بر ا		and Sandstone, also		75.Q <u>.</u> 8-4		1
	∵ = <u>-</u> -	Ш	Scat. Hard, Tan Sili Nodules.	1 ELGE	i i		
	<b>"</b> -				100%	Bex.	•
	<b>"</b>	III			40.0' R-7	,	CARTON SAMPLES
	42-3≡		40.0'-70.0' Shale, Laminated, Mo	4.	90%	Box	1. 19.2'-20.0'
	<b>"</b> "		Hard-Hard, Unwesth	. Dk.	) ]	5	2. 22.3'-23.2'
ł	===		Gray-Black Calcared W/Num., Pockets and		45.0 R-8		3. 25.0'-25.9' 4. 33.0'-33.9'
٠ ا	#重		Lenses of Sand and S		```		5. 37.9'-38.6'
- 1	##		stone.		80%		6. 42.0'-42.7' 7. 46.6'-47.5'
ſ	<b>∞-</b> ≢	≡			50.0 R-9	80-	8. 53.4'-54.2'
1	"基	$\equiv$	fordia for and ordered			Box 6	9. 56.3'-57.2'
1	#=	$\equiv$	Sand is fine-grained, G Well-Compacted,	ray,	100%		10. 60.0'-60.5'
Ì	**重	$\equiv$	Sandstone la fine-grain		35.0 R-10	1	12. 67.61-68.51
J	<b>*</b> =	≣	Mod. Hard-Hard, Gra Friable.	7.	87%	Box	•
ļ	<b>%-</b> =		Siltstone, Nodules, Har	ابه	58.0	7	5, 37,9-18,6' 6, 42,0'-42,0' 7, 46,6'-47,5' 8, 53,4'-54,2' 9, 54,3'-57,2' 10, 60,0'-60,5' 21, \$1,1'-62,0' 12, 67,6'-68,5'
J	"≛	$\equiv$	Tan, Octasionally Fou	anc.	26-11		_
J							
- }	"事	#	63.0'-66.0'-HIZHY Cal-	. 1	62.0	Box	
ŀ	4-37	77	careque Fossil Zone-	ı	R-12	3	-
j	進.,,	迢	Abundance of Fossils Causes Shale to be Ver	. 1	فيه		
ł	.,≢		Impure and Incohesive		R-13		
7.01	"≡		70.0'	1	70.0	Box 9	
***	四丁	٦	Total Depth = 70.0 Fee	-	TX1X)	_	Note I)
[	쿀		·	1		1	Soils Logged By: -
- {	3	ı		į		1	A. J. Simpson, Trialty Engineering
ſ	3	- 1		ļ	[		Testing Cosposation:
ſ	3	- 1			[	1	Primary Lossed By:
- }	4	J	•	1			Green & Marr Corpe of Engineers,
}	릨	- }		-		. 1	Fort Worth District
- }	3	ļ	•	ļ		ļ	ي المالية
- {	3	- [		ŀ		1	Installed 2" Plastic Pipe from 649.6 to
- {	ումանակավայեր	- {		į	1	Į	tiini for ground-
ļ	-3	- 1				]	water observations.
	.3	- {			1	- 1	
- {							_
1	3	`\		1	l	- 1	
	mpm		•		}		

						Ť	W.1. W
	LING L		- Line	-1776		CII W	Mole No. 1027 10
1. 545.121			Southwestern	1	- TO T	17173	Bally 4"Care
Aubtey				17 626	HEL.	****	terrae ar print
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	-		354C-60	12 242			MILL A
Trinity	Engin	eerin,	Bill Stanton Teating Corporation	15 61.6	47100 65		Ser Vote 2
<b>6</b> 0 +4++-				4 641	ration to		2-15-72 12 10
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6. DEPTH SE 8. TATAL D			50.0	Ser	Vote 1	under	"Remarks"
\$C\$44716		, g4t=+			3654	# T	through the spiritual states of the same o
606.12	1	rir	1.3 Brown Clax			WL.	3" Shelby tube sam
_XXX111	2 =	777	Tan Clay w/Lignite an			W2	ples 0. 0' - 23, 0' = 5et tub at 23, 0'
602, 42	14=		Calcareous Particles 5.0'	!		M.F	Cleaned hole to 26.5
	≣، ا		5.0'-8.0'		199	封	Set 6' casing to 27.0 Used 4" core bbl.
599, 57	≣. ا	<u> </u>	Limestone, Severely V		100	0 <u>1</u>	27.0'-50.0'
-597.42	_ ا		Sandy, w/Iron Ore at	۱. ط م	100	W5	JAR SAMPLES
			10,0' Lignite Partic	100 [	100_	We	\$ 2. 5.6'- 6,6'
	12-	<i>Y//\</i>	10.0'-17.0' Cisy, Tan, Sandy, ₩/[	ron	100	WZ_	3. \$.0'- 9,0' — 4. 10.0'-11.0'
	14 =	(//)	Ore and Lignite Part	cles	100	15 W9	5. 14.0'-15.0'
590.4	16-		17.0'		100	W10	6. 18.0'-19.0' == 7. 22.0'-23.0
	in =		17.0'-28.7'	att	100_	Wit.	8. 26.5'-27.0'
	20-3		Shale, Weath., Tan, 5 Mod. Hard, w/Num.		100_	84	WRAP SAMPLES
	22-		Sand Pockets and Len		100_	75. 17.	1. 0.0'- 1.0' 2. 1.0'- 2.0'
	24-						3. 3.0°. 4.0° 4. 4.0°- 5.0°
	,, 🗏						5. 9.0'-10.0'
	, <u> </u>				100 R-1	JE.	7. 12.01-13.01
استعتب	=		28.7'		60.03		8. 13.0'-14.0' 7. 15.0'-10.0'
- 1	×==	$\equiv$	SHALE, Gray, Massis Mod, Hard, w/Occas	re	R-2	Box	10. 16.0'-17.0'
	" 🖥		Gray, well Compacte	d.	80.07		11. 17.0'-18.0'
	버클	≝	Fine-Med. Grained S Lenses.	and a	35.0		BAG SAMPLES
	<b>%</b> 픨		33, 7'-33, 8', Siltatone		R-3	Box	2, 4,6°, 8,0° 3, 19,0°,20,0°
	:•= <u>=</u>	▦	Hodules, Tan, Very H	ard .	39.0	2	4. 20.01.21.01
367.82	10 =		-39.6'-50.0', SILLE		R4	_	2. 21.0°-22.0°
	12		19,61-50,01 SHALE, Gray, Med, H	ard.	90%		1. 27.5'-28 0'
			Unweath, Laminated		44.8	Box	[2, 30,0'-31,1' ] [3, 36,2'-37,0' ]
.		8	Numerous Lenses and Layers of Gray, Med.	Hard	R-5	3	4. 43.4'-42.0'
- 1	Jun ≱		Well-Compacted, Fin MedGrained Sandan	•	90%	31=	5. 47.6'-48.4'
557.42	i di		Sandatone.		49,0		
27	بر ال		50, 1'-40, 3', Sandstone Parous, Fassiliferous		1005	_	Note I:
- 1	1		Hard, Gray. 4.6'and 46.6', Siltston	. 1	1		Soils Logged By: A. J. Simpson.
	4		Nodules, Tan, Very H		}		Trinity Engineering
	्म		48.4'-50.0', Shale, Ha: Gray	d.			Testlag Corporation
	Ili		50, 61	- [	١. ١		Primary Logged By- Marr and Marple,
	T I		Total Depth = 50,0 Fee	<i>-</i>			Corps of Engineers, Fort Worth District
					1		Nesta 2:
	3				1		Installed?"plastic
	l I				)		Installed 2" plastic pipe from 608.6 to 583.3 for ground-
	lui Jun				1		water observations.
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					1	}	Installed 2" plastic plps from 60% 6 to 533.3 for ground- water observations.
			1 .				
	_ =				ì	ì	·

151C (0 Fort Worth BAILLING LOC Southwestern Aubrey Dam Site No. 1 MSL THE THE STREET OF BELL X+2, 132, 097, Y+613, 127, Sta. 43+74. 71 DAMCO Model 1250 Corps of Engineers 334C-60
Came of parcel

Trinity Engineering Testing Corporation

3 200(1) on of one | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See | See See Note 2 12.19.72 E----407.42 ----| 1 | 3"Shelby tube sam-| W2 | ples 0, 0'-23, 0' | 11 | Set tub at 21, 0' | W1 | Cleaned hole to 26, 5' | W4 | Set 6" casing to 27, 0' | Bil. | Ilaad 4"core bbl. Tan Clay w/Lignite and Calcareous Particles Used 4" core bbl. 5.0'.8.0'

Limestone, Severely Weath.
8.0'.10.0'
8.0'.10.0'
Limestone, Clay, Tan,
4.5andy, wiron Ore and
10.0' Lignite Particles
10.0'-17.0'
Clay, Tan, Sandy, wiron
Ore and Lignite Particles 27.0'-50.0' JAR SAMPLES
1. 2.0'- 3.0'
2. 5.6'- 6.6'
3. 8.0'- 9.0' 4. 10.0'-11.0' 5. 14.0'-15.0" 100 Us 100 Ws 100 WID 100 WID 100 Js 100 BJ 100 BJ 6. 18.0'-19.0' 590.4416 7. 22.0'-23.0' 8. 26.5'-27.0' 17.01-28.71
Shale, Weath., Tan, Soft,
Mod. Hard, w/Num. Tan
Sand Pockets and Lenses. 110-WRAP SAMPLES 1. 0.0'- 1.0' 2. 1.0'- 2.0' 3. 3.0'- 4.0' 4. 4.0'- 5.0' 5. 9.0'-10.0' 22-4. 11.0'-12.0'
7. 12.0'-13.0'
8. 13.0'-14.0'
9. 15.0'-10.0' -11777 SHALE, Gray, Massive
Mod. Hard, w/Occas.
Gray, well Compacted,
Fine-Med. Grained Sand 윤 11. 17.0'-18.0' 32 BAG SAMPI ES
1. 5.0'- 5.6'
2. 6.6'- 8.0'
3. 19.0'-22 0'
4. 20.0'-21.0' 15.0 Lanses. 33.7'-33.8'. Siltetone 125% Nodules, Tan, Very Hard 19,6' 19,6'-50,0', SHALE CARTON SAMPLES
1. 27.5'-28.0'
2. 30.0'-31.1'
3. 36.2'-37.0'
4. 41.4'-42.0'
5. 47.6'-48.4' 39.6'-50.0" 90% HALE, Gray, Med. Hard, 44.0 Box R-3 Unweath., Laminated, w/ Numerous Lenses and Layers of Gray, Med. Hard Well-Compacted, Fine-Med. -Grained Sand and 505 -49.0 Sandatone. 557.42 0. 1'-40. 3', Sandatone, Porous, Fossiliferous, Hard, Gray, 14.6'and 46.6', Slitstone <u>հայտարակարկումասկամիակամիականակարկակարարականում արարական</u> Note 1: Soils Logged By: A. J. Simpson. Trinity Engineering Testing Corporation Nodules, Tan, Very Hard 58.4'-50.0', Shale, Hard, Gray Primary Logged By: Marr and Marple, Corps of Engineers, 60.01 Total Depth = 50,0 Feet Fort Worth District Note 21 Installed 2" plastic pipe from 608.6 to 583.3 for ground-354C-57 BAS FORM 1536-A EMORPHED Aubrey Dam Site No. 1 354C-60

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Plastic 49.6 to ground vations.

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MSL   March	THE REAL PROPERTY.					## PT	"Sheller 4 'Lorg		
Trinky Engineering Texting Controlling   Trinky Engineering Texting Controlling   Trinky Engineering Texting Controlling   Trinky Engineering Texting Controlling   Trinky Engineering Texting Controlling   Trinky Engineering Texting Controlling   Trinky Engineering Texting Controlling   Trinky Engineering Texting Controlling   Trinky Engineering Texting Controlling   Trinky Engineeri	Aubre	Dam Site	No. I	NI STORE PERSONNE GENERAL PARTIES					
1	X=2, 13	5,051, Y.6	13,472, 512, 65+57	15 5450	नराज्य		**************************************		
1	Corps	of Enginee	r•	<u> </u>	بنوعيا	ioder	230		
District   District		~~~~.							
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	7 1010	C guefuser	ing Testing Corresponding			. 07 44	1100 11000 1110		
Serve must to sect   31.6	B ******		********						
Seen Notes week	7 PmC40E1		4. 32.6						
Dark Brown Clay w/   100   W2   100   12   100   12   100			14 37.4				••		
Dark Brown Clay w    100    WL   100	4 10746 00	***		1 See	Note		r "Remarks"		
Dark Brown Clay w    100    WL   100	Cr6494++			**	· (	*****	(Branches and State and State and		
19.1.51   2.0 Calcarrous Particles   100					<u></u> -				
Dark Brown Sandy Clay   100		3///					3"Shelby tube sam-		
391.51   4   4.0"   Calcargeous Particles   100	استندا		Dark Brown Sandy Cla				27.01-23. ', 33.0'		
## Tan and Gray Sandy Clay ## ## ## ## ## ## ## ## ## ## ## ## ##	_591.51	4∃///	4.0 Calcareous Parti	5)56	100_	בנאב	34.0'.		
Tan and Gray Sandy Clay	1		<i>'</i> λ	}	100	-XX			
### W/Lighte Particles   100	1 1	<b>⊌</b> ∃///	Tan and Gray Sandy (						
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11.0'   100   11   2. 6, 6.7-7.0'   1   100   11   100		Ĭ∄///	γ	ŀ	100				
Tan Clay w/Sand Lenses    100	584.51	10글///	11.0				2. 6.0. 7.0		
Tan Clay w/Sand Lenses    100	·····	., <i>⊒⁄⁄</i> //	-		100	.w9_	3, 10.0'-11.^' - 클		
11. 18.0'  12.		["ӟ///	Tan Clay w/Sand Lan	1	100				
16	1	14=\$///	/	,			2 5 5 6 5 5 6		
18_0'   100_	1 1	ا//قررا	a	1	100	W12			
Tan Clayey Sand    100		" <b>]</b> {//	7			ذنيا	. =		
20   Tan Clayey Sand   100   Wils   100   Wils   100   Wils   100	1-277-51	18 = 4//	A 18.0'						
100		20,⊒∜%	Tan Clayey Sand		100	LW15	Set 6" casing to 33, 0'		
100   16	}	<i>≡{/;/;</i>	A	i	100		Used 4" core bbl.		
100   WIS   100   WIS   100   WIS   100	1	22 <del>   </del>   ///	/d		100_		34.0'-70.0'		
26	571.51	, <u>.⊒</u> ′//	A 24.0'				WRAP SANIPLES		
Clay Lenses   27,0   3, 3,0,-4,0'		I =::::		. 1	R-1	ا 1,7	1. 0.0: 1.0:		
SANDSTONE   a Mod. Hard,   S47,	l		Tan Sand and Graves			1"	1 10 40 3		
SANDSTONE   a Mod. Hard,   S47,		::: ا€ا	City Lenies		100	BL	4. 4.0 . 5.0		
SANDSTONE   a Mod. Hard,   S47,	1				R-Z	l	! -: 5.25-6.00 目		
SANDSTONE   a Mod. Hard,   S47,	1	30-₹	<b>:</b> 1	-	12%		6. 7.0'- 8.0'		
SANDSTONE   a Mod. Hard,   S47,	1	:≢ا	11		"		17 50 20 3		
SANDSTONE   a Mod. Hard,   S47,	302.71	¥"ا≟	2 32 41 70 01			.	1 8. 9.0-10.0		
SANDSTONE   a Mod. Hard,   S47,	1	y-====		ONE.	2.3	BZ_	19.11.00-12.00		
SANDSTONE   a Mod. Hard,   S47,	ļ	]., ===			ŀ	1	10. 12.0-13.0		
SANDSTONE   a Mod. Hard,   S47,	i	\ <u>**=</u>			74%	l. Box	13. 15.00-16.00		
SANDSTONE   a Mod. Hard,   S47,	1	30	<b>=</b>				13. 16.0'-17.0'		
SANDSTONE   a Mod. Hard,   S47,		140 ====	<del></del>			1	(Continued)		
SANDSTONE   a Mod. Hard,   S47,	1		32.6'-70.0'		]	Ben.	WRAP SAMPLES		
SANDSTONE   a Mod. Hard,   S47,	1	42-3-		d,	94%	1	14. 17.0'-18.0'		
SANDSTONE   a Mod. Hard,   S47,	1	L. 🗮	Massive Gray Unw	eath-	44.0	Box	115. 19.0'-20.0' 3		
SANDSTONE   a Mod. Hard,   S47,	i	" <b>]</b>	= ered				17. 21.0'.22.0'		
Sine-Med. Grn. Li. Gray.   Sine-Med. Grn. Li. Gray.   Sine-Med. Grn. Li. Gray.   Sine-Med. Grn. Li. Gray.   Sine-Med. Grn. Sine-Med. Grn. Sine-Med. Grn. Sine-Med. Sine-Med. Grn. Sine-M	1	44-3-	# CANDSTONE IS US	. Have	1	1	18. 23.0'-24.0'		
Well Cemented   49.0		1 =			.l	<b> </b>			
50   Solution   Soluti	ł	""			42.0				
52   34.0   34.0   3.1, 37.0-37.9   34.0   3.1, 37.0-37.9   3.4, 0	1	50-	끠		R-6		2. 33.0'-34.0'		
100%   100%	1	I., #	<b>=</b>		914				
State   Stat	1	**	:: <u> </u>		1	1	1. 37.0'-37.9'		
Sylic   Syli	1	×=]:::	:::				] 2. 42.0'-42.8' <u>- 클</u>		
State   Stat	1	I≢≕	<b>=</b>			1			
Sylication   Syl	1	**==	=		94%	.			
19. 10   10.00   10.	1	58-	큵						
59.7'-70.0' SHALE & SANDSTONE Alt. Beds w/Occas. Sand Leases SHALE   Box W/Occas. Sand Leases  SHALE   Box W/Occas. Sand Leases  SHALE   Box W/Occas. Sand Leases SHALE   Box Gray Mod. Hard Laminated, Calc. SANDSTONE   Goray Mod. Hard Fine-Med. Gra. Poorly Camented, Friable Galt.  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  SHALE & SANDSTONE Box A. J. Sumpson, Trinity Engineering Testing Corporation; Primary Logged By: Marr Corps of Encincers. Fort Worth Dastrict. Note 2' Installed 2" plastic plps from 596.1 for ground- 55.1 for ground- 55.1 for ground- 55.1 for ground- 55.1 for ground- 55.1 for ground- 55.1 for ground-	518.1	3 = 111							
Alt. Beds w/Occas. Sand Leases  A. J. Sumpson, Trinity Engineering		*°=			1		1 =		
Leases B. Gray, Mod.  Hard Laminated, Calc.  SIALE le Dk. Gray, Mod. Hard Laminated, Calc.  SANDSTONE is Gray Mod. Hard Fine-Med. Grn.  Poorly Camented, Friable  GelC:  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Dov.  Sol.1 forground-  Forground-  Sol.1 forground-  Sol.1 forground-  Sol.1 forground-  Sol.1 forground-  Sol.1 forground-  Sol.1 forground-  Sol.1 forground-  Sol.1 forground-  Sol.1 forground-  Sol.1 forground-	1	62			100	시			
SilALE to Bk. Gray, Mod. Hard Laminated, Calc.  SANDSTONE is Gray Mod. 68 Hard Fline-Med. Grn. Poorly Camented, Friable  Gorp of Encincers, Corp of Encincers, Fort Worth District, Note 2:  Installed 2" plastic plps from 596.1 to gray ond.	1	1 300		. sand					
Hard Laminated, Cale.  SANDSTONE is Gray Mod.  Hard Fine-Med. Gray  Poptly Camented, Friable  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet		** <del>:</del>		, Mod.			Trinity Engineering		
48 Hard Fine-Med. Grn. Poorly Camented, Friable 69.0 69.0 Marr Carps of Encincers. Total Depth = 70.0 Feet Note 2: Installed 2" plastic plps from 5%.1 to 56.1 for ground.	1	<u>u</u> ==	Hard Laminated,	Calc.	1	<b>—</b>	Testing Corporation: 🗐		
525,51  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Total Depth = 70.0 Feet	ı	#	SANDSTONE IN GIA	y Mod.	925	'   no-			
Total Depth = 70.0 Feet   Corps of Engineers, Fort Worth District.   Note 2: Installed 2" plastic   plps from 5%.1 to 56.1. for ground.	1	68 -	Hard Fine Med. (	ith.	69.	ું દ	Marr =		
Total Depth = 70.0 Feet  Total Depth = 70.0 Feet  Installed 2" plastic plys from 596.1 to 565.1 for ground- 565.1 for ground-	525,5	J 70.≡	Eale, Camented,	* * * * * * * * * * * * * * * * * * * *	100	<u></u>			
Installed 2" plastic plys from 5%. 1 to 56.1. for ground-		1" =			1	1	Fort Worth District.		
pipe from 596, 1 to 563, 1 for ground-	1	1 긜	Total Depth = 70.0	3 est	1	1	Note 21		
	1	=	1			í			
	i	=			1	1	563.1 for ground		
	1	1 =	1		1	1			
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Hote He 3540-61

## RECORD DRAWING-WORK AS PUILT

374	00 NO	ACTION	DATE	OESCHIPTION O	F REVISION	
		U.S. ARM		NEER DIBTRICT, FORT A MPB OF ENGINEERS FORT WORTH, TEXAS	WORTH	
94 94	HC# 87.			RAY ROBERTS LAK	E	
			ELM	FORK TRINITY RIVER TE	EXAS	
1440	# \$7.		EMBAN	NKMENT, SPILLWAY	AND	
				OUTLET WORKS		
46711	C+C+ 41.			LOGS OF BORINGS	3	
		38-57,3	54C-5	8,3S4C-59,3S4C-60	,AND 3S	4C-6
SUBM	11TED 87			INVITATION PO DACW 63-82-6-00		
==	===			CONTRACT NO DACWES- 82-C-	0083	SEQUENC
(461	HEER			CRAWING NUMBER	SHEET NO	1 7%

Holo No 354C-62 DRILLING LOC SOUTHWESTERN HUGREY DAM SITE \* 1 144.400 DAMED /250 354C-62 14 TOTAL NUMBER CORE BOTES TRIVITY ENCE TESTING CORP. Erentes Discomes 17 ELEVATION TOP OF HOLE ---19 SIGNATURE GENERAL FOR BONNE 19 SIGNATURE GENERAL FOR BONNE 19 SIGNATURE GENERAL FOR SIGNATURE THE SERVICE SAME CONTROL OF ----120.0 ----ELEVATION DEPTH LEGEN CLASSIFICATION OF WATERIALS 00' - 35.5'
SANDSTONE DRILLING Profes comented BUT 3" SHELBY TUBE TIGHT, HED -COARSE GEN 0.0 - 3.0' RED, TAN, AND GRAY, SCATT GRAVELS FISH - TAIL BIT \_\_\_ 30-16.0 ٠. . NX - CORE BOL 160-19.0 (MIRECON) 34" ROCE BIT 19.0 - 24 0' 6" ROCK-BIT ... 240-30,0" 4" CORE -BBL. 300-35,5' (m Reco 4" CORE . BBL 35.5 - /08' HX CORE BBL 103 - 120' SAMPLES JAR 1: 2.0-2.5' 2: 3.0 -3.5 3 · /00 - //.0 4 · 21.0 - 30.0 5 · 35.5 - 36.0 30 35.5'- 50.0' SAND C SANDSTONE MED. - COARSE GRN, SOFT, Y. PORLY GEMENTED, GRAVELLY, TAN & GRAY SAMPLES (cost)

CMTON 1: 465' 47.5'

2: 52.5 - 47.5'

3: 57.4 - 52.2

4: 62.3 - 62.2

6: 72.3 - 73.2

7: 78.3 - 78.2

9: 97.7 - 91.6

10: 351 - 35.0

11: 96.5 - 71.4

12: 11.4 - 112.5

13: 116.1 - 117.1

WATER LEVEL AFTER

36 WOURS WAS .65.6' 500-515 SAUDT GRAVE 5 THA DIAN, THEO COARE GLU SAUD, LOOSELY CONT, TAN'S COAD 515-57-55 TANDATTONE, HUBET WATH, CRAYLLY, SOFT THOO HED TAN'S BROWN THE HARD, THE SAUNT, DE. GRAY 5315-550 SHALE, HARD, THE SAUNT, DE. GRAY - HOD HARD, FINE HAD, THE 573-575 SHITSTONE, HARD, THE r\$1. lag . . 57.5'- 810' SANDSTONE, SHALY, LIGHTIC, CRAY TO DE GRAY, SUFFINCO NOTE: HOLE WAS \_ PRESSURE TESTED \_ HAAD, MASSIVE, FINE-MED GEN, COCAS SILTSTONE HOOS.

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CLASSIFICATION OF WATERIALS	S CONE RECOVI	POE OF	Separate to the state of the st	
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STIONS ARE OBSOLETE.	Aut	REY	DAM SITE # 1 354C-	42

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	, '=		moist, stiff, b	uc.,		. 1	c. 36.	0 .	
. •	=	1	scattered grave stiff, brown.		,		C. 36. D. 38. E. 38.	έ,. <i>'</i>	.
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•	غ ا	<b> </b> :	Start 6* d. bb	l at		,	, suple	r.	•
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.;	:=	] `	24.0' to 26.0'.	,	•		1. 24. , 2. 34	0 to 26	.0 .
	=	]	CLAY, calc., moist,	. stiff			3. 36.	0 to 38	.0
	=		. gray and tan				L. Hole	Squeezi	ng.
	-	1	26.0' to 34.0'				badly	at 27.	۰,0
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	=	1	NO RECOVERE				Hole	8x6D-64	ı, uü
· • •		· [	34.01 to 37.31		l		deni:	illed t	les fro
***		1	CLAY, sandy, moist	, med.		1	bear	to 34.0 ings and	, ejear-
	-		stiff, gray and t	an.	١.	Can		r comple	
·:•	<u>                                     </u>	1	37.31 to 38.61						, .
, ·	:	\	SAND, gravelly, cla			Λ/	5. Dr	illing: to 24.0	)' - 8"
4.	:≒	4\ /I	saturated, med. d	ense,		M	. =	ger - no ken.	ample
	7,	1 V E	Refusal w/d. bb!	1. at	Ī	١V	24.0	' to 38. 'd. bb'l	l. '
1	1.	]	38.6' Start 3' tail at 38.6'	fish-	1:	۱۸	18.6	to 101	3 ۱۰۵۰
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••	١.	<b>∛ \</b>	38.61 to 12.01		1			ntificat erials i	
	-	=	SAND and GRAVEL, a	oad.	1	Can	l . to	lol bas	sed on
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0	un Si		11: 041	UN YOU	ELEVATION OF	T 8" auger, 6" daba 3"	1
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	<b>1</b>	moist, stiff, br	c.,	1	1	1 C. 36.0	F
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1	Ī	stiff, brown. 19.0 to 24.0 - cal		٠.	f * '	B. 28.0 C. 36.0 D. 38.0 E. 38.6	F
1	7	moist, stiff, gr	ינ עני	<u>l</u> .	1	1 '. '	F
1		tan.	-	ľ `	•	NOTE: All jar samples taken from shoe and	F
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ļ		Start 6- d. bb'l	ا	1	1	, 'sampler's	E
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1		24.01 to 26.01.	• •	'	1	3. Denison cars: 1. 24.0 to 26.0 2. 34.0 to 36.0 3. 36.0 to 38.0	Ė
		CLAY, calc., moist,	stiff		ĺ	- 3. 36.0 to 38.0	þ
100	•	gray and tan.		1	1		t
		l	1		1	4. Hole squeezing '	þ
		26.01 to 34.01				hadly at 27.01.	F
		-3.0 ~ 34.0.	1		1	he plastic pipe set to US.01. Another	F
		NO RECOVERY -				offset from 600-30	F
	•		- 1		l	offset from 6DC-30, Hole 6A6D-6LA, will	E
	* 1	34.0' to 37.3'	`	,	i	be driffed to cotal:	ł.
		* * * * * * * * * * * * * * * * * * * *	,		1	denison samples from 26.0 to 34.0. Offse	Ĺ
		CLAY, sandy, moist,	ñed.		i	bearings and eleva-	t
		stiff, gray and tan	•	•	-	tions will be furni:	ŧ
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	<u> </u>	37.31 to 38.61	1		1	]	ŗ
	. \ <i>[</i>		۱ ۲۰		1	5. Drilling:	F
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	Į.	- Refusal w/d. bb'l.	ا دو		ΙÝ	i. 6 d. bb1. '	r
	/\	38.6' Start 3" f: tail at 38.6'	isn-	,	ı۸	38.6' to 101.0' - 3	ţ
	/ \ I		- 1	*	I/ \	fishtail,	ŧ
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	V	38.6' to 14.0'	Į		V۱	6. Identification of	F
	$\neg$	SAND and GRAVEL, med.	. 1		Can	materials from 18.	£
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		Ala	(VISION				Hele No. 8460-644
DRIL	LING LO		Southvestern	For	t Worth		Or 1 1-1673
AUL LOCATION				10 512 E	417 DFA	118 10 S	S auger, 6 d.bb'l.
		*** ** **	A HOLY	12 WAR	UPACTUA	19 5 0630	GRATION OF DAILS
COILLING MOLE NO and his ma	TPS OF	Engin	eers		Pailire	1500	
			846D-64A				1 6 6 6
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E) *****					VATION TO		Apr 73 - 11 Apr 73
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ELEVATION.	06974	156640	CLASSIFICATION OF WATERIN		NECOV.	01.07	REMARKS (Distingtions, more two Josh of matroting, size, of argumetani
	111		0.0' to 24.0'	, ' 1	<u> </u>	<u> </u>	
	-				['. : '		1. Water table not
i, i			CLAY, calc., moist, a brown to gray and t	tiff,		* .	-determined.
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•					1	<b>,</b> , ,	· A. 26.0
						[ •	B. 28.0
	11	.	Ster: 6" d. bb'l.		•	ļ I	F. 36.0 D. 32.0 C. 30.0
٠ ,	=		24.0'	• *	1	1	E. 34.9 F. 36.0
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*	3	,				'	NOTE: Jar samples take from shoe of denison
	-		24.0' to 34.0'		1	], ]	bb'1.
ľ	-:∄	` \	CLAY, celc., moist, m	ed. st	155	[ [	
	-1		to stiff, sandy to with sand increase	32.0	1		3 Postona dono
	3		tan and gray.	-	ľ.	'	<ol> <li>Denison Cars:</li> <li>24.0 to 26.0</li> </ol>
}	-					} }	2. 26.0 to 28.0
1	=		al as a second		1	.	3. 28.0 to 20.0 4. 20.0 to 22.0 5. 22.0 to 34.0 6. 24.0 to 26.0
•	긐		34.0' to 36.0'				5, 32.0 to 34.0
1	3		SAMD, sli. clayey, me saturated, medium to	d. de	se,		0, 34,0 m 30,0
1	ョ		saturated, medium to grained, tan.	coar	•		
7	7	'.	,	i	,		   K ==4884
- 1	Ħ						4. Drilling: 1. 0.0' to 24.0' -
• 1	_==	l					8" auger
j	ᆿ			. 1		Can	2. 24.0° to 36.0° - 6° d. bb'l.
}	且	. 1	T.D 36.0' -			1	•
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HG FORM	1836	PREVIOU	S EDITIONS ARE DESOLETE		Aub	rey Duc	Site 18:60-64

RECORD JRAWING-WORK AS BUILT

374	OC NO.	ACTION	DATE	DESCA	IPTION C	PEVISION	
		U.S. ARM		NEER DISTRICT, FI RPB OF ENGINEERS FORT WORTH, TEXAS	ORT W	YORTH	
	15 6304		ı	RAY ROBERTS	LAKE		
			ELM	FORK TRINITY RIV	ER. TE	XAS	
9044	14 67		EMBAN	IKMENT, SPILL	WAY.	AND	
				OUTLET WOR	RKS		
*[71	£469 841			LOGS OF BOR	INGS	3	
		3	S4C-6	2,3A6D-64,AN	D 8A	6D-64A	
SUBS	117160 64			INVITATION NO. DACW 63-8	2.6.00	ES DATE MA	R. 482
7.7	NEZ			CONTRACT NO DACW 63 - S	z c		REGUENCE
FAM	U CEL			CARRING NUMBER		SHEET NO	25

Holo No. PASD-AC DRILLING LOS 5 - 100 - hh--tern Fort forta Dist THE EXTUR OF ELECTRICAL STORM (TEM - MILL) This canada to the service of the se II -ASUFACTURER COLUCIATIO Falling 1500 14 TOTAL NUMBER CORE BOILES TO IN DATE HOLE | STATE | COMPLETED | 10 DATE HOLE | 1-Apr 1073 | 5 Apr 1073 | 10 THE SEC. | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DATE | 10 DAT 1 THICKNESS OF OVERBUREEN 3C.7 0 DEPTH DRILLED HITS AP. 4 . C. 3 1 TOTAL DEPTH OF HOLE G7.4 IN TOTAL CORE RECOVERY FOR DONING F 2 y
IN TOTAL CORE RECOVERY FOR DONING F 2 y
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(Drding 1504, september of the control of t ELEVATION mhudunlanliin ٠, Drilling <u> 0.0 - 17.0</u> 0.0 - 22.0 8" augrr 22.0 - 40.0 6" d bbl 40.0 - 67.0 3" -fishtril 67.0 - 97.5 2" core A. 24.0 B. 26.0 B. 26.0 C. 29.0 E. 30.0 , CLAY CLAY
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T. 38.0 17.0 - 26.2 . 10 י כונגפ . . . . . . Denison semples · 25.2 - 1'.0 CLAY 1. 22.0 - 24.0 2. 24.0 - 26.0 3. 26.0 - 30.0 5. 26.0 - 32.0 6. 32.0 - 34.0 7. 34.0 - 36.0 8. 36.0 - 37.0 moist, gray and ten, stiff to v. stiff cale 4. Apr., 73: adjacenhole, 6DC-31 at weyater table Dŧ 02 Br casing to 6.5' clearing to 5.5' ٠ . ١ D3 04 .\* 34.0 - 33.8 SAUD . . 05 ten, satid, in donse, red to a crue in, 06 calc 33.9 - 25.5 07 TOLAY TO DESCRIPTION OF STREET, TO Ŕŧ \*\* BØ TO Fecay 2 110

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		CONTRACT NO DACWES-52 C CC /3 SEQUENCE									
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	 67 	U.S. ARM	U.S. ARMY ENGINGED COME COME COME COME COME COME COME COME	U.S. ARMY ENGINEER DISTRICT, FORT V CORPG OF ENGINEERS FORT WORTH, TEXAS  RAY ROBERTS LAKI ELM FORK, TRINITY RIVER, TE EMBANKMENT, SPILL WAY OUTLET WORKS LOGS OF BORINGS 8A6D-65 AND 8A6D- TIED BY INVITATION NO DACW63-62-6-00 CONTRACT NO DACW63-52-62-6-00	U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FOAT WOATH, TEXAS  RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT, SPILLWAY AND OUTLET WORKS LOGS OF BORINGS 8A6D-65 AND 8A6D-66  TIED BY INVITATION NO DACW63-62-6-0-25 DATE MAN CONTRACT NO DACW63-52 C CCCS						

Hole Ha. 8152-57 Smell 1 or 2 smeets DRILLING LOS Fort Forth Metric A PIES THE SAME ON SIZE THE MINE THE TANK THE TANK 1. Cocation (communication WANUFACTURERS DESIGNATION OF CAUL S DRILLING ACENCY Compa of Dord noona

. not no far mem on drawns men;
BA6D-67 ---iblins M. DATE HOLE 8 AVE 75 PAVE T 'Erenticat Dinermen P THICKNESS OF OVERBURDEN TOTAL COME ACCOVERY FOR BOM TOTAL DEPTH OF HOLE 35.3 COME BOT OF DEPTH LEGEN 0.0 to 33.3 Ž, ... drilling CIAY - -0.0 to 15.0 10" auger 15.0 to 33.3 6" D 801 33.3 to 35.3 77/8" 0.0 to 3.0 medium plasticity, dark brown, medium stiff, Jar B 3.0 to 9.4 low to medium plasticity, brown, very, moist, stiff, slightly sand Denison samples 1. 15.8 to 17.8 2. 19.8 to 21.8 3. 21.8 to 23.8 4. 23.8 to 25.8 5. 25.8 to 27.8 6. 27.8 to 29.8 7. 29.8 to 31.8 8. 31.8 to 33.3 9.4 to 16.5 medium plasticity, dark brown, stiff, moist 16.5 to 26.5 low plasticity, dark brown, stiff to very stiff, moist, slightly sandy Į, D. Certon samule , , 1. 18.1 to 19.0 can denison can Jar samles مبته. A. 9.0 % 3.0 B. 3.0 to 3.0 C. 8.0 to 9.4 D. 9.4 to 15.8 E. 17.8 P. 19.8 G. 21.8 2. Con H. 23.8 I. 25.8 J. 27.8 Cha K. 29.8 L. 31.8 26.5 to 30.5 medium plasticity, dark brown, stiff, moist CF. : Con 6 pol. 30.5 to 33.3 medium plasticity, gray and tan, very stiff, soist. Section .... COA Fole offset 20,7' 535°s from staked location (X- 2,141,45; Y- 615,594). Her elevation in 559.6 as determined by hend level. 33.3 to 35.3 GRIVEL — 2017 Test | 1.50 | 1.50 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 inimitaliniminiminiminiminimi . . Hand penetroneter test depth . . . . depth tons/sq. ft
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Hole was not bailed.

4° slotted, plastic
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	بانساشاشقاسيا		20.2 to 29.2 lov pla gray and trn, vary at moist  29.2 to 52.6  SAND - tan, loose to saddum asburated, non calcar
のできる。 本語の 大きな 大きな 大きな 大きな 大きな 大きな 大きな 大きな 大きな 大きな	indinitation in the finding of the second	ときからははないは、心臓のないなからないない	saturated, non calcar  \$2.6 to \$6.0 ***  \$2.6 to \$4.5 medium tistity moist, stiff,  and gray  \$4.0 to \$6.0 low pla tan and gray, soft to stiff, saturated, san  \$6.0 to \$3.5  SAND  tan, medium dense, as miniptly clayer \$3.5 to \$45.5  GRAYEL  tan, loose, saturated, sandy, becomes coarse  \$40.5  7. D. \$45.5

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		=	1	0.0 to 4.5 medium pI ticity, brownish-gray	35-	İ	L	15.0 to 5
		/ E	1	stiff, slightly moist	<b>'</b>		Jack	rockbit
		-	1	l .	4	*		no casing
		١.,Ξ		4.5 to 11.0 low to me plasticity, brown, st	iss d		202	
		-	l	Tery stiff, soist, with	th ev		٠٠.	Jar a
	•	=		Calcareous particles :	5.2 t	٠,		'4. 0.0 to
		10 -	•		- 1			B. 4.5 to C. 5.2 to
	-	=		11.0 to 20.0 high pla light brown, moist to	pite	ity,	Tor ()	D. 10.2 to
		_	**	moist, stiff	اديوه	.	_ 1	F. 11.0 to
	•	3		20 0 40 22 0 34 -3.	ا '	. · ·	짤	-P. 17.0 C. 19.0
		_=		20.0 to 22.0 high pla light brown, medium at	165	ty.	€.	H. 21.0
	i	3		. very moist to saturate	a ]	l	لــــٰــا	I. 23.0 J. 25.0
		- =		22.0 to 28.0 medium n	123		Canl	K. 27.0
		.3		22.0 to 28.0 medium p ticity, brown, stiff to	o ver	, , [		L. 29.0 M. 31.0
		3		stiff, moist, wit. some particles and a few some	e ca∏t	careous	Can	N. 33.0
		. =	w à*	shells		l	2	0. 35.0 P. 37.0
		E		28.0 to 30.0 medium pl	, <u>.</u> .]	ſ	$\nabla$	-Note: samp
		20 T	٠	ticity, tan, stiff, ver	7	- 1.	N	P taken fr
	.	<b>ヨ</b>		moist, slightly sandy	1	Ī	244	Denison ba
		П		30.0 to 32.0 low plass	ticit		3	i. Nastani
	i	= =	"	tan, saturated, stiff,	sand		44.5	Denison .
		$\Xi$	l	3230 to 43.0		. ].	50%	1. 15.0 to
	- 1	. ≓	\		- 1	1	Can	2. 17.0 to 3. 21.0 to
	. 1	$\exists$		SUID	1	ľ	6	3. 21.0 to
		3	- 1	32.0 to 34.0 tan, ned		l	246	5. 25.0 to 6. 27.0 to
	- 1	.크	- :	dense, clayey, saturate	M			7. 29.0 to 8. 31.0 to
		Ε	- 1	34.0 to 36.5 tan, loos	۱۰,	- t	can	8. 31.0 to 3
		<b>≫</b> ⊣	ŀ	saturated, gravelly	:1	ľ	7	
	. 1	• ∃		36.5 to 43.0 with coal	-50	l.	24.8	Note: no s:
	·	-		gravel .	. [	- 1	-48	70 Sample
	l	Ξ				<u> </u>		due to pre
	. :	크	- 1		ı	ľ	97	<b>-</b> -
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		<b>~</b>		العرب و درس که مرسیق باز کشوره و درسی داد مرد مرد بر سیست مرد در و د	<u>~</u>		ΧI	All overbu
	r: . l	- ∃	.			٠, ٢	$\vdash$	are calcare
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		: =	٠, ١		$\cdot \cdot \cdot \mid$		3 <u>1.</u>	
	::::\i	-∴∃	<u></u>	45.0 to 44.0	<i>i</i> 1	'	\chi_c^2	depth
	ا.رز	=	$\equiv$	SHALE	:	.	· ·	17.0 19.0
		⊹∃	j		• •	`.:'I	` : <sub> </sub>	23.0
	-::-	· - 3	٠ ا	dark gray, medium hard (rook classification),	<u></u>		~ l	25.0
		ं⊹≓		weathered, non-jointed		- : : :		27.0 .29.0
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		- 17	División .	PRETAL	. afies		Hole No. BIED CO	
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	-	1	ticity, brownish-gray		l	<u></u>		F
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	.,=	1 ' '	plasticity, bross, si	411	۲.	C-	Jar symples	E
	=	1	very stiff, moist, wi calcareous particles	5.2	Γ.	1	• •	E
	=	]	11.0	· · · · ]	:	l	(A. 0.0 to 4.5	E
4 <sub>6</sub> ,	10 -	] • [		i		<u></u>	B. 4.5 to 5.2 C. 5.2 to 10.2	E
*	=	1	11.0 to 20.0 high pl		ity,	Jans	D. 10.2 to 11.0	E
	=	,,	light brown, moist to	A013		1.	E. 11.0 to 15.0	Ē
**	=		moist, stiff		٠.	Tar.	· P. 17.0	Ē
	=	1.	20.0 to 22.0 high pl	satid	ity.	E	C. 19.0	E
	=	1 ;	light brown, medium a	ucc	••		H. 21.0 . 1 I. 23.0	E
	=	1 1	- very moist to saturat	જ		ـــــــــــــــــــــــــــــــــــــــ	J. 25.0	E
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			22.0 to 28.0 medium ticity, brown, stiff	PL	·	1	L. 29.0	
	`=	!	stiff, soist, wit. so	30 0	lcareon	-	¥. 31.0	Ε
	_		particles and a few a	111		Can	H. 33.0 ·	E
	• =	- 1	chells	- 1		2	P. 37.0	Е
,	=		20 0 40 50 0	1		$\mathbb{N}_{\mathbb{Z}}$		E
	20 -		28.0 to 30.0 medium ticity, tan, stiff, v			IXI	Note: samples ? through P taken from shoe of	Ŀ
	1 3	i î	moist, slightly sandy			٢	Demison barrel.	E
' !				- 1		3	:	E
	=		30.0 to 32.0 low plan	tici	ty,		Ponison sanoles	E
- 1	_ =		, tan, saturated, stiff	, sur	y	Š	ARMENI ATTIVICE	E
1	7	l	3270 to 43.0			50%	1. 15.0 to 17.0	E
- 1	3	\ I	5150 to 1510	- 1	-	_	2. 17.0 to 19.0	E
٠ ا		/\ I	SUID	- 4		Can	3. 21.0 to 23.0 4. 23.0 to 25.0	느
ŀ	3	``	* *** * * * * * * * * * * * * * * * * *	.	- 1	•	5. 25.0 to 27.0 /	=
ı	Ξ.		32.0 to 34.0 tan, nec	Kina	- 1	CMG	6. 27.0 to 29.0	E
- 1	- 3		dense, clayey, satura	1863		50%	7. 29.0 to 31.0 8. 31.0 to 33.0	⊨
	Ξ	1	34.0 to 36.5 tan, loc	l			5. 31.0 to 33.0	=
	<b>∞</b> -∃	- 1	saturated, gravelly	٦, ١		Can	9. 33.0 to 35.0	=
ı	• =		76 6 A. 17 A	. 1		7	Note: no sample 19.0 to	<b>=</b>
• 1	ᅼ	- }	36.5 to 43.0 with con	12.0		CAB	21.0 due to catcher:	F
	⇉	- 1	<b>-</b> 2142	٠ ا	1		no sample 35.0 to 37.0	=
_ [	⇉			- 1	1		due to presence of grav	F
, 1	ᆿ	- 1	*	J		ا تيم		F
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·	. ㅋ	١		٠-	***	$\wedge$	are calcareous.	E
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- 1	ᄵᅼ	<del>-</del> #	State of the State of the		<u> </u>	l	* * * * * * * * * * * * * * * * * * * *	F
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	: =	. 1		. 1		ایا	Mend ponetroneter test	E
35°N	$\Box$	ا ':		. H	: .	71		F
``~``	∵.≓	===	43.0 to 44.0 ·	: 1	ا " " .		.depth tons/sq. ft.	F
ં છે:	-7	=	SHALE	: 1	٠	18	17.0 . 3.20	F
· : :	:: 3	١,		ای	٠.٠		19.0 * 2.75	F
2:301	:: 3	٠ ا	· lark gray, notion hard	1	· 1	, *c	25.0 11 2.65 1 125.0 , 2.65	F
	·:∃	1	(rock classification).		انيون	6.	27.0 1.75	E
<u></u>	∹∃		weathered, non-jointed	<b>,</b> [		100	,29.0 (1.50	F
- 375	. 🗀	, "		· . ` '		اذن: ا	+51.0. ·· 1.201	E
( N	"∖;∃	- 6		N	• •	[ 35]	Seveter table	Е
	50-1	.:`		ı,	, 13	20.	** Pater table	E
	~ =	`` <b>?</b> '	47	, 1	3.1		(Bole bailed to approx-	E
3.4	⊹×±	*:	· [4] [6] [6] [6] [6] [6] [6] [6] [6] [6] [6		₹.		imately 30.0' but making	Ε
	्रच	3	5 S	٠, ١	, 1	145	water very rapidly,	E
1.24	∴⊐	- 1	. 21	. 1	,	. 2	After completion of bailing, water level at	E
1/4	ᅾ	- 1			÷ .	4	-9.8'. Additional water	E
107	: =	- 1		4	ty.	* } ~	.table information re-	Ė
- 1	٠_٦	- 1		- 31	٦,	3	ported on supplimental	E
ارين٠٠	· 7.3	1	****	٠ ا			sheet. 4" slotted plastic pipe set to	F
. 7	∃	- 1		. [		<b>~</b>	35.0'	F
. 1	. 1	• 1	;	•-	٠ ا			ㄷ

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ŞΫ₩	00 HO	ACTION	DATE	DESCRIPTION	OF REVISION					
		U.S. ARM	Y ENGI	NEER DISTRICT, FORT	WORTH					
			co	APS OF ENGINEERS		1				
412	MAIL 07:			FORT WORTH, TEXAS						
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			1	RAY ROBERTS LAK	Œ	1				
			ELM	M FORK, TRINITY RIVER, TEXAS						
9040	371		EMBAN	NKMENT, SPILLWAY	' AND	1				
				OUTLET WORKS		1				
9671	EW29 971				^	I				
	-	_		LOGS OF BORING		1				
		8.	A6D-6	7,8A6D-68,AND 8	3A6D-69					
SUB	AITTED BY			INVITATION NO. DACW 63-82-6-0	025 ME:MA	4.1982				
				CONTRACT NO DACW 63-82 - C.	0013					
ENGI	HEER			DRAWING NUMBER	SHEET NO	27				
					07.	4				

							Hale He.	61-70	
अधार अधार	INC FO	9	St Protection	-314	70-1-70			9-667 J	
this st	مندن			HABEL!	1734 FC 1736 FC	VATION TO	STATE THE		
X- >1	33.5.2		<u> </u>	-X.0120	3 . ETG • E		ATION OF BAILL		
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Bullin	3			·			140		
<b>(C)</b>				12 ELEV	_	14		5 Aug 73	
THICKUES DEPTH DE			39.2	10 107	C048 6	COVERY.	PO- 000100		
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	-								Ē
	-		0.0 to 29.0			Jar A	Drill!	ine	E
	. 3		CLAY				0.0 to 40.0	8. enter	E
•	-	1	0.0 to 5.0 medium ;	las-		}	no casing	-	=
	1		ticity, dark brown, stiff, slightly mois	t alum		1	lar su	plez.	E
	milmi gindindan		5.0 to 10.8 medium	plas-	1	Jan B	1. 0.0 to		Ē
.	]		tisity, brown, stiff with some calcaroous	eios ,	<b>}</b> •	,"	8. 5.0 to 1 C. 10.8 to	12.0	E
`	=		ticles				D. 12.0 to E. 16.8 to	21.8	E
	10-		10.8 to 27.0 high ;	lastic	ty,		P. 21.8 to C. 27.0 to	27.0	E
	3		brown, stiff to very moist	, still	1	TOUC	H. 28.0 to I. 29.0 to	29.0	E
•	=		,		Ì	50	J. 31.0 to	33.0	E
		`	•		1	D	k. 33.0 to	35.0	F
	-		*		1		L. 34.0 to N. 35.0 to N. 38.0 to O. 39.2 to	39.2	E
•	=				[	$\sqcup$	0. 39.2 to	40,0	E
	يًا إ				1	300	, No.	<u>to</u>	E
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	1 =		<b>5</b>			F		ud not used	E
	ئے ا	1			l	Jan	4" slotted	ot balled. plastic pipe	톤
	=	1	27.0 to 28.0 mediu	o plas		1. 1	pletion of	drilling,	F
	=	./	tisity, tan, medium	atiff	to o		water leve 24.1'. Ot	l standing at her water tal	:
		1	stiff, very moist,	arrene	1	Jar6	informatio suppliment	n reported or	Ē
	1 =	1	26.0 to 29.0 low p	lastic	ly.	Zeo H		• ;	E
	ئــروا	1	tan, medium stlff,	estura:	tod,	20.			E
	:	}	29.0 to 33.0		1	Ī			E
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	1 :	3	1		1	Seek			E
	1 3	3	ten, loose, satural becomes slightly sr	avelly	1	2.1		•	E
٠. ن. ن	بنينه.	]	31.0 to 35.0	ہو۔ ۔ ٹڈ	:  ::	- Jar	27 MAR		E
		Ė	33.0 to 34.0 ***		1	M	٠	•	E
١.	1 -	=	GLLY		1	SAFN	1	× ×	E
	·	<b>j</b> =	sedius to high plas	ticity	ન	تمعمة	7. D. 0 4		E
] [ /		] :	brown, stiff, sois	t, 511	ghely .	.   .~	[35]	17.5	E
ļ ·		Ē	gravelly		1 24	4 5	13 % C	*ε + 2 <sup>5</sup> 5,2	E
1 2 3	1	= .	34.0 to 35.0	; *		128.	W		E
Ι ΄		- €	GRAVEL	•	1:0	1	420		E
- ;	1	=	tan, loose, satura	ted, ·	1	4:2	<b>115.4</b> €	, **	·E
3	1.	3	poorly graded		,	14		rs of	E
	.[-]:-	3 /	35.0 to 39.2		·1'	1:35	75	1.	E
. "	8 4	‡	CLAY			1.3	1		Ē
	1.	<u> </u>	. 35.0 to 38.0 medi	un pla	5-	1. 6			Ē
	·  `-	∄:	ticky, brown and	eria.	, T.	1	188		E
		∄.;	38.0 to 39.2 low	plasti	city.	1	情激光	. W. A	E
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<b>\</b>	. [ ]	₹	present send the		٠,	13			E
{ }	-	∄ .	39.2 to 40.0		. \	1.5	1. 43 1.75		E
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ł	-		0.0 to 6.5 medium p brown, medium stiff	lastic	ty, 🕏	3
İ	=	}	brown, medium stiff stiff at 4.0), sligh	(become	3 '	د
l	1 =		4.	· A	•	Ľ
}	1 =	}	6.5 to 11.5 low pla light brown, very at	sticit	}.	Γ.
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,	=	1	***************************************	•	13	(
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l	1 3	3		1		Ĩ.
{	1	3	<b>}</b> • • • • • • • • • • • • • • • • • • •		1 :	11
ł	=	4	***	*	١.	1
ł	1	3	16.5 to 29.6 medium	to hi	<u>.</u>	
١	1 3	3	plasticity, brown, a	tiff,	1	[
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١.	1,-	4			1	G
1		3	29.6 to 50.5 low p	lestic	lty	.]
1	30 ∸	∃ :	tan, stiff, saturat	ed, su	∞φ.	, Jan 1
1.5	.  ~ :	╡ ′	Acid slightly grave	717		E
13.,		<b>∃</b> `′	30.5 to 31.7	*.*		1
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٠	] -	ј .	t dan, loose, saturat	od.		K
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1		₹	32.5 to 37.0 Mg	plast	icity,	IJ'n.
1	-	3	etice very moist	to sat	urated	1.4
1.	İ	3	Becomes slightly s	andy a	t \$5.0	<b> </b>
Į.	: 1 :	ヰ			.   ;	.1 `
1 .		Ξ.	37.0 to 45.5		4 :	.'  '
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1.	50	- <b>-</b> 1	tan, loose, satur	ated.	N	.1.
1 .	1	3	olayay, with some and small cobbles	. PBCC	an '	1
1.	١.	<b>늬</b> ·	very clayey at 42	۰0۰	1	-11
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1	1		}	0.0 to 30.5		3.3	ff	0.0 to 45.0 8 auger
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٠.	•	=	١,	stiff at 4.0), slight			8,	A. 0.0 to 4.0
0		1 =	}	6.5 to 11.5 low plas light brown, very sti	ticity ff,	, .	J.	B. 4.0 to 6.5 C. 6.5 to 11.5
ě		1 =		slightly sandy		\ \(\frac{1}{2}\)	နှံ	D. 11.5 to 16.5
tk	•	10 -		13	٠.	: •	, <b>\</b> {	7. 20.5 to 25.5 0. 25.5 to 29.6
xxx		=	<u> </u>	11.5 to 16.5 medium ; ticity, light brown,	plas-	•	<u> </u>	II. 29.6 to 30.5
to		13		moist		,	75.	1. 30.5 to 31.7 J. 31.7 to 32.5
to		-=	1	,*	3.1		Ď	L. 37.0 to 42.0
to to		3		1,1	٠,	. 1	٠	N. 42.0 to 45.9
<u>ل</u> و.		=		16.5 to 29.6 medium to plasticity, brown, sti	o Ma	<b>.</b> .		Note:
ri	:	=		moist .		,	Jar	All materials are cel-
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. '	. •	١, ١	, ,	29.6 to 30.5 low plantam, stiff, saturated,	ticit;	. 1		E
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		ᆿ	ı	31.7 to 32.5 high plan	tiot	y. 🐪		- 7/4 / E
	•	Ŧ	ı	gray and tan mottled, a stiff, very moist, cale	caredu	•	Tao	S. B. B.
:	*	크	ļ	32.5 to 37.0 high plan grayish-brown, soft to	tict	y, :	n.	o more services. E
	Ì	`∃	- 1	stiff, very moist to a Becomes slightly sandy	aturat	ed	3	
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۰0	S	. 크	``	57.0 to 45.5	<b>?</b>	-:'[	.	<u></u>
٠. ٠	[`	Ħ	*x	CRAVEL	ᆟ	- 4	٠	1984 E
*	.:	∞∃	- ]	tan, loose, returated, clayey, with some shell	اکیا	$ \cdot $	•	AND ME
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			becomes milty at 10.	٠. ا	١	200			E
* .	=		11.0 to 12.5 tan, m	edius	٠,٠,	2.0	· ( <u>Pr111</u>		E
	\ <u>=</u>	ار ا	dense, moist, milty, manll ironstone modul	with	:	Jar	0.0 to 24.0	,8 inger	F
	7		* * *		,	E	0.0 to 24.0 24.0 to 28.0	), 6", ∞re	, <u>F</u>
* ′	11		12.5 to 15.0 tan and loose, saturated, with	P SLV	<b>,</b>	Jas	. Jan see	5 <b>]63</b> · •	E
	11		ironstone	٠ ا		F	A. 0.0 to 4	.0	F
			15.0 to 17.0 gray, 1	loose		1	B. 4.0 to 10 C. 10.0 to 1	0.0	E
المريد	11	1	saturated, silty	,	***	Jar	D. 11.0 to	2.5	=
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	<b>∞</b> ∃	·	saturated, silty	. *-	'	Ja. H	G. 17.0 to 2	20.0	E
٠,	3	$\equiv$	20.0 to 21.0	- 2	•	7ar.	H. 20.0 to 2	11.0 .	E
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4.0 to 11.0 tan, se	diu	`.	× ×	23.0. Rea	musa rebo	
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	I _7	.	4 3 24			انسا			~.··
	<u>                                   </u>	i	0.0 to 4.0 medium	to high		Jar	no casing		1.
	1 3		plasticit; dark brostiff, dry to slight	oun, Play mot	h	B	. مالور	122	•
	I∄		non-calcarcous,	1 دهن و د.	Γ"		· ** *	-44	•
	\					Jar	A. C A	-	
•	lЭ		4.0 to 6.0 medium	plastic	ty.		B. 4.	1.0	
•	ΙŒ		light brom, very st	urr.		Jar	C. 6.0 to	7.5	
	1 3	. !	moist, slightly sand	ià, car	T ·	0	D. 7.5 to E. 10.5 to	13-0	
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	1 3		6.0 to 7.5 low plan	sticity	į ·	Jac	1		•
	1 -		6.0 to 7.5 low plantan, stiff, moist,	sandy,	[	ΙË	Carton	arrie	•
•	=		calcareous			-			
	13		7 5 to 10 5 clam =1:		<u>.</u> .	₹ F	1. 18.1 10	19.0	•
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ŀ	1 =		tan and gray, very ; noist, sand, non-c	lcaro	us.		1		
i	=		becomes slightly gra	velly	[ ]	Box	4" slotted set to 19.	l plast	ic pipe
1	=		10.0 to 10.5		L	1	set to 19.	O afte	rhole
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ì	-		10.5 to 19.0		1	1.4	table info		
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We tild and been 8 per HT appear 67 core 816 201 Prest i DRILLING LOC Southmeatern 123160 Aubrey lave ..eft sbutzent Failing 1500 Cores of Instruers BAGLAR 18 TOTAL NUMBER CORE BOLES 15 ---- OF EPICE Conference of moce 14 DATE HOLE | 15 APR 75 | 16 Jan 75 | 16 Jan 75 | 18 Jan 75 | 19 GENATION FOR MOLE 62-05" 62/3 Britar ett Cince ute 4.0 \* THICANESS OF OVERSURCEN TOTAL COME RECOVERY FOR BORING 90: 0 CEP" M CHILLED 1473 40C4 82.01 . \*\*\*\*\* \*\*\*\*\*\*\*\* ELEVATION CEATH LEGEN CLASSIFICATION OF WATERIALS ACCAE SAMPLE REWARKS
(Disting time, water less, depth of weartering, stay, if algorithms) Jar 0.0' to 4.0' Drilling Α ೨೩೫**ರ −** − brown, loose, very moist, medium-grained, non-ordear ರಿಚಿತ 4.0' to 33.5' ಶನಿಸರ (prinam) - red, massive, weathered, fire-grained, with some as 90 ironatone concretions and zones slightly clayey 10 вох OU 1 4.0' to 16.3' nor-comente 130 00 16.3' to 24.5' poorly conented ' 2 170 19.0 00 210 3 03 24.5' to 27.3' non-cement 247 Pepth of weathering at 55.0°. Fole was electric logged. Not state level four inch slotted plastic pipo was set to 49.1°. 350 50 4 27.3' to 29.0' poorly cesented 270 29.0° to 33.5° non-coment slightly clayey, becoming very clayey at base 天三 . 0.0 5 5.3 13.5' % 43<del>.</del>8' 32.0 00 SELE - -346 light gray, moderately weathered, massive, non-calcal equa-easy to drill, 4.25 to 4.50 to on had prestroneter down to L. 35.0° and 24.5 below 35.0° 0.0 6 sands to very sands with 40 ∄

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15 ELEVATION CROUND WATER 10005000 IS DATE HOLE IT ELEVATION TOP OF HOLE IN TOTAL CONE RECOVERY FOR BORING REMARKS

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	_						Hole He. 8462-85
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<del>- (%), i %;</del>	Lake	eren er 112	*14*)	SE BATE	= 75X EC	EVATION	THOUNG THE WALL
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	<u>"=</u>	, ,	0.0' to 3.5'		``	Ā	, brillier E
٤.	<u>'</u>		SAND '		٠,		0.0' to 7.0' 8" auger
1.50	=	:	tan, loose, maist, f	ine to			7.0' to 67.0' 6" care =
•,	=		medium, sirty, non-c	alcare	pus	8	l <del>I</del> -
,	]	3	3.5' to 25.6'		3		Aer extites .
	=	<u></u>			<u>'</u>	70	A. 0.0' to 3.5'
	_=	CI.	SAUD (prinery)		Loo	Box	B. 3.5' to 6.0'
`.*	,-=		3.5' to 6.0' brown,	non-c	==-		Carton sarales
	,,=		ented, non-calcarcou to nedica, slightly	s, fin	100	1.	1. 7.0' to 7.9'
,	":=		very coist, with mun	erous	,		.2. 12.3' to 13.2' . F
١. ا	<u> </u> =	;∷	ironstone concretion 6"), easy to auger	s (to	00	116	3、16.0' to 16.8'   🗀
·	- =	21:				. !	4. 18.0' to 18.9' 5. 27.7' to 28.6'
	- '=	~::	6.0° to 8.6° reddis	n-brox	h, 14.5	2	6. 32.1' to 33.0'
<b>:</b> 、	T	:÷:::	poorly cenented, with cretions, very diffi			^	7. 34.7' to 35.6' 8. 41.4' to 42.3'
	=	7.5	anter		60	ا ۲۰۰	9. 48.1' to 49.0'
•	=	35	8.6' to 14.2' redd1	ah-l m			10. 54.0' to 54.9'
	· =		non-comented, massiv	e, ver	y 12 a	177	12. 65.6' to 66.5'
`,	. =	45	moist, men-calcareou scattered small iron	s, Wit strne	h-10	ĺ	
4.	=	5	concretions, carbona	ceous	0.3	3	liote -
	æ	:=:	inclusions, and deca			ا ۔ ٔ ا	Depth of weathering at
	· =	=	'14.2' to 25.6' beco	ces li	mt.		33.71
*	. =	. =	. Erry with resoration-or	೦೪೧೧ ೬೧೧	<u> </u>	ا ا	*Pater level
	] =	=	yellowish-brown, cla some carbonaceous ma	tter a	hd C	23.1	Hole was not bailed but
	=	等	occasional thin vein selenite	s of	03		left open for water
ĺ ,,	.∃					ų	level checks.
• • • • • • • • • • • • • • • • • • • •	, <del>-</del>		18.0' to 19.8' CL dominately gray, s	AY, pr	26.0		[E
	i =		pockets of yellowi	ancy, sh-bro	m ch	i '	
	:=	5	clayey send			28 G	
		72.0	19.8' to 25.6' to	êleri (	170		
	<b>30</b> —	97 SA				5	l i i i i i E
13.4	=	e de xa	lenses of clayey s sandy clay	and an	0.4	ا ' ا	2.33.11
	. =	25			ا م	٠,	
	=	6	25.6' to 45.0'		330		```
	=		SHITE		L	34.3	
المراجد	45	7	25.6' to 26.7' dark	• •	00		E
1.46.2			sandy, massive, with	purpl irons	tone	£.,	La company in the E
- باغناد	·*:>=		-modules		37.0		
	ŀ <u>∵</u> =		26.7' to 28.6' 11gh	t gray	L1.0	-1	[1] 经分级 (1) E
	} = =		and gray, slightly w	eather	ed.	396	•
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ELEVATION			CL 431-7
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3	ireastone concretion	e (to	l L'	116	.2. 12.3' to 3. 16.0' to	13.2	•	þ
7	ironstone concretion 6"), easy to auger	~	00	-~-	3. 16.0° to	10.0		Ŀ
721			i		4. 18.0' to 5. 27.7' to	28.61		t
नःः	6.0° to 8.6° reddis	אסבק−נ	h, a	2	6. 32.1' to	33.0'		t
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453	cretions, very diffic	clit t	<sup>1</sup> ኤ ՝		8. 41.4' to	42.5		Ŀ
45,	) ****		00	••	9. 48.1' to	49.0		Ł
72,	8.6' to 14.2' reddi:	b-tro	70.	. *	11. 58.3' t	a 59.21		Ŀ
7.7	non-cemented, massive	e, Ver		177	12. 65.6' 1	0 66.51		Ł
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7	concretions, carbonac inclusions, and decay	eous m		3	D	44 . X		Ł
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1'=	selenite	. 04	03		left open f	or sater	,	F
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8.7	18.0' to 19.8' CL	l¥, pr	<u> :60</u>		4	*	•	F
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7	pockets of yellowis	p-010	mo.4		* * * * * * * * * * * * * * * * * * * *	•		F
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6 8	25.6' to 45.0'	]	330	^. <b> </b>		• *	•	F
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-	25.6' to 26.7' dark sandy, massive, with nodules	purpl	· l	ا ہ	```,		٠	F
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	and gray, slightly we	athery	٠d,	22.			;	F
5.8	approximately 4.0 on	hand	, }	395			i	E
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LEVATION	DEPTH	LEGEPO	CLASSIFICATION OF WATERIALS		201 67	REWARES  (Desting spin, more seen domb of meeting out yes got any
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l	_	72		410	1	
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	-		and non-jointed		<b>'</b> '	1
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ig.	-		AA 24 wa aa	10		
'.6'			28.6' to 33.7' becones	1 -		
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γ.		<del></del>	renotratetor ·	T	***	i <sup>*</sup>
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- 1			42.8' to 45.0' with sea	سيخ	9	
	-		tered fossils	E3 0	'	
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			45.0' to 57.6'	IG		
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٠,			and parameters of success at	· · · · · · · · · · · · · · · · · · ·		
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- 1	60	<u></u>	with numerous fossils from		50:	
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ı		12.5	51.3' to 57.6' tecomes 11			
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L	=	===	gray; were conclude, with		n l	
		===	numerous lenses of gray.	I. i	"	
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ı			>7.6' to 60.5'			
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- 1	Ħ	l l	carcous on telling planes	i .		
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RECORD BRAVING-JORK AS PUILT

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				FORT WORTH, TEXAS
0 [ 0:4=4 0	•"			RAY ROBERTS LAKE
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			ELM	FORK, TRINITY RIVER, TEXAS
	'		EMBAN	IKMENT, SPILLWAY AND
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				LOGS OF BORINGS
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Halo Ho. Southwester 0 DRILLING LOG Port Forth District Aubrer Lake
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mode no 180 memor or or L MANUFACTURER T DETIGNATION OF BRICK Palling 1500 307-06 BARE OF BRILLIA Milling OF HOLE M SATE MOLE : 15 Dec 74 6 Jan 75 **23**1€811€44 □Inchmes IT ELEVATION FOR OF HOLE & 0.01 THERMESS OF OVERBURDEN TOTAL COME RECOVERY FOR BORING BEPTH DRILLED MTO ROCK 140.01 brilling 0.0' to 68.5' 0.0' to 140.0' 3 1/8" • red, fine-grained Jar sample A. 45.0' (from split spoon; may be fall-in 8.01 becomes firmer, possibly ottoer . . . u,u becodes firmer, posa olever Due to inaccesibility, bole was offset approx-imately 50° WS7 from elevation 690.26° to 7 . } ., elevation 674.8' (as meanured by hand level) Packer lost in hole at 95.0', and hole was radrilled 4.5' 3 at same elevation. 14.5° ironstone concretion 243 ... ÷ Attempted unsuccessfully to obtain sand samples with shelly tube, split spoon, and BX core barrel. Bole was pressure tested and electric 4.0 20.0° to 21.5° fairly hard. . 1 poorly cenented •• - ',' logged. Logging is by drilling action and cuttings. , •, ; á Ā. .... × : 1111 : ÷ ; .ग्रे निया

1	ELEVATION	96PTH	LEGENO	CLASSIFICATION OF MATERIALS	\$ Cone	BOX OR	e;
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ı		=		73.8' to 74.1' harder			
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Į					<b>,</b>		
ł		`,''E		77.21 very hard	4	7	:::
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ł	<b>—</b> :	80 =		79.5' to 81.5' very hard		<u>-</u>	
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L COCATION	•	Ambrey		:	IS SATURARD TYPE OF BIT BO AMONT BOCK & COPE						
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<u> </u>			f Engl	neers		Paili	nur 150	0	Louisiato		Į
- HOLE HO			of title	BASDC-90		DEN SAMP			٠١٥		Į
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ELEVATION	OEPTH L	LEGENO	- CLA	HIFICATION OF WATER	ría '	RECOV	POS OR TAMPLE MO	(Dreing inc.	EMARS word have due one, il organica		
, ,	.,=	2.1		'-to '1.51			1	** ***	** ***		E
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	. =		9.21	to 30.0	` . <b>`</b> .	L 1.4"	DO X	cone roc	7 <sup>7</sup> /8" tr	7.01;	E
	10.0		SHALE	12 to 1 1 1 1		.,	150		to total	lepth.	E
			gra	to 13.5' - tan y, silty, soft.	to	1/2			to 1.51	•	E
· ·	=		Tes	therod.	,	<del> </del>	:	B. 1.5"	to 2.5'	•	F
	Ξ		13.5	10 30.00 - dag	k gray		Box	4. Carton			E
٠,	:∃	■山	def	ty, horizontal tinition, soft, f	ossil-	c 1.0°	2	1. 13.5	to 14.51 to 21.61	-	늗
Ì	Ë	=	***	rous, non-calcar ept for fossila	MOUS I	٠.	.4.	3. 27.8	to 21.6°	•	E
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1	* =		ಕ್ಷಾ ಜ್ಯ	y siltstone note 2° to 26.0°.	d froa	•,		5. Core B	20 11.61		E
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	<b>∞.</b> ο-				•		2ox	4. 22.6*	to 27.4*		E
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HG FORM	836	REVIOUS	EDI TIONS	ARE DOSOLETE		PROJECT	mbrey	Decs	816	E-30	

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			Y ENGI	NEER DISTRICT, FO					
£ \$10	~10.07			RAY ROBERTS	LAKE				
		ELM FORK, TRINITY RIVER, TEXAS							
440	4 97,			NKMENT . SPILL	•				
	·			OUTLET WOR					
£416	***			LOGS OF BOR					
		3SF		ALYX HOLE A		90			
	STTED BY			INVITATION NO. DACWES-82					
	=			CONTRACT NO. DACW 63-82		SOUTH			
YG-NEEA				ORAWING HUMBER	SHEET NO	31			

8165-91 , Wale No. DRILLING LOG Q "" 0- 2 Sett13 to the and tom or out to aware 6" fore. Aubrey Das Invest Orelas Porca TE WARDE DE VARE L'ESTICAL PION DE BANCO Tailing 1500 Corre of Dickerers SYEL-OI TO TOTAL NUMBER COME BOLES Sergice of Stagesver and Walles ... 11 Dec. 1975 16 Dec. 1975 M DATE -CLE Ertericas Sintemet. IF ELEVATION TOP OF MOLE \* \*\*\*CanESS 37 3vensuses 12.01 TOTAL COME MECOVERY FOR -----CLASSIFICATION OF M ruev Printing the motor for some of -----•.•. Bole bailed to near T.D.
upon completion with
Z7.0° of slotted plastic pipe installed for
water level observations
Water level after: 0.0 to 14.01 SAND 0.0° to 4.0° - very fire grained, light brown, un-orsolidated, dry, non-Ruduulunlunkulankulunlunlun calcarmus. 20 hours - 29.0' 48 bours - 17.2' 4.0' to 7.0' - as above interval, light tan color slightly damp, mon-cal-Drilling: Augered to 19.51; 6° core to total depth of 64.11. Offset tore hold 71° east and drilled fishtail hole 3° in disaster to total depth of 67.01° for electric lograms.

Electric log was sade for this baring.

Jers:

A. '0.0' to 4.0'
B. 4.0' to 7.0'
C. 7.0' to 9.0'
D. 9.0' to 14.0'
E. 14.0' to 15.5'
P. 15.5' to 18.0'
G. 18.0' to 19.5'
Cartons:
1. 20.6' to 21.5'
1. 20.6' to 22.5'
5. 44.8' to 45.8'
6. 51.6' to 52.6'
7. 55.9' to 59.9'
Core boxes:
1. 19.5' to 24.9'
2. 24.9' to 50.2'
3. 50.2' to 55.9'
Core boxes:
1. 19.5' to 52.6'
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8. 52.6' to 57 ċ' CATCOUS. 7.0' to 9.0' - very fine grained, rust brown, soist, becoming clayer (cohesive), non-calr:: D carcous. 9.0° to 14.0° - an above interval, more clayey, more soist, non-calcareo 14.0' to 18.0' GRAYE - borders on gravelly clay, dark brown, poorly graded up to 11", becoming wet from 15.5' to 18.0', P mon-calcarmus. G ».o. 18.0° to 24.0° SEALE - light tan, soft, intermittently liny and gray below 20.0°. Yery calcarous. Box 1 L 0.5 24.0' to 36.9' LIMETCHE - light gray, fire to nedlem grained, o redica hard, argillacous, fosmiliferous (less argil-0.5 lacous, lighter in colo from 29.5' to 34.5'). 36.9' 'to 63.9' SMALE - dark gray, silty, soft, intermittently for-elliferous, slightly calcurous. Light gray very fire grained sand-stine moted from 54.51 to 54.81 Conv. dama. Box 3 54.8°. Cray, dense, ni C 0.3° caccous siltatone noted from 57.2° to 59.0° with 事 fengular (approximately 100 from horizontal) on Box tact with stale below. L 0.2 C 0.1 5 50.03 L 0.7 6 ուդուրորուրուրուրուրու C 0.4 7 L 0.2 C 0.5

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7 THICKNES	1 0/ Ove	-	15.2'	*****	AT104 TO	- 07 401	
	1660 1	TO ROCK	10,51	10 101	L CORE #	COVER.	
	PTH 3F	HOLE	25.5*				
ELEVATION			CLASSIFICATION OF MATERIAL	,	1 5000	901 OF	
	***		(Deec, spelan)	1	\$ 650 W.	101 00	
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1	_	١ ،	0.0' to 15.2'				
l i	_		CLAY AND SAND - clay &	oni-			
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	i =		noted only at 6.0%. from 0.0% to 2.0% lin	Clay	i i		
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	J =	]	reddish brown, stiff,				ĺ
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,		(	low planticity, sligh moist; becoming dry, ly sandy, light rurt at 4.0°. Sand at 6.0	y		<u> </u>	
	ΙΞ	1	morari occoming dry,	1100-		[ ]	
١.	-	ł	at A.O. Smit at C.O.	DIDAN	3	l i	1
1			fine mained, how	c1 .v.	<u> </u>	. 0	
1	=	1	fine grained, brown, ey with scattered fin		lio Sanclo	1 ' 1	
1	<u>ا</u> ۾ م	1	gravel. Clay was not	ed		1 1	
i	10.05	ì	gravel. Clay was not below and to 15.2'; r	od-	4	١.	ŀ
Į l	[ =	1	dish brown, some grav			_Б_	
l .	ľ =	<b>1</b>	silty. Slightly sandy	•			1
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81672-02 SHEET 1 DRILLING LOG PORT TOTAL

WE SIZE AND THE OF SIT

IF DATUM FOR ELEVATION INDUSTRIES IN MILL LOCATION CONTRACTANTO Turnel Outlet Sorks

Continue service

Dorre of Sudicesore

Soft no 16 or an arrangement 646X II MANUFACTURES I DELICATION OF DAILL Pailing 1500 8160C-32 14 TOTAL NUMBER CORE BOSES
15 ELEVATION GROUND PATER ONECTION OF MULE NORTHOUSO 19 Jan SATE HOLE 20 Jan 1976 1976 D THICKNESS OF OVERSUPDEN ....... 17 ELEVATION TOP OF HOLE 15.21 19 ECCU SOLO OF PLOYERS TO SOUTH TO SOLE OF PLOYERS 25.5 CEPTH CHILLED INTO BOCK Occupion Deem recend A COME BOY OF CLASSIFICATION OF WATERIALS 0.0° to 15.2° Bole was bailed upon completion and perforated plastic pipe installed for water level obser-CLAY AND SAND - clay domi-nates everturion with sand noted only at 6.0°. Clay from 0.0° to 2.0° light from 0,0° to 2,0° light reddish brown, stiff, silty, sardy, ardium to low planticity, slightly moist, becoming dry, finely sandy, light runt brown at 4,0°. Sand at 6,0° rate grained, brown, clayey with scattered fine gravel. Clay was moted below and to 15,2°; raddish brown, sone gray, silty, slightly sandy, sedium to low planticity, sedium to stiff, moist, pon-calcarcous, 1; 1 vation. ¢ 3 prilling: 8" suger to 2.0"; Denison barrel to 17.0"; 6" Calcla 17 ore to 25.5'. Jors:
A. 0.0' to 2.0'
B. At 4.0'
C. At 6.0'
D. At 8.0'
E. At 11.0'
F. At 13.0'
C. At 15.0'
H. At 17.0' **5** 2 ٠6 15.2' to 17.2' SFALE - tan soft, silty, 7 calcarcous. Denizon Cans:
1. 2.0' to 4.0'
2. 4.0' to 6.0'
3. 6.0' to 8.0'
4. 9.0' to 11.0'
5. 11.0' to 13.0'
6. 13.0' to 15.0'
7. 15.0' to 17.0' 17.2' to 25.5' LIMENTONE - gray, soft to sedius hard to hard, fine to sedius grained, ergil-lacous, fossiliferous. Box 1 0.0 Box 2 5. Cartons: 1. 18.7' to 19.7' 2. 23.3' to 24.2' L 0.01 -T. E. 25.5'-. Core Boxes; 1. 17.0' to 21.5' 2. 21.5' to 25.5' 31 ( Ť TORM 1836 PARVIOUS CONTIONS ARE OBSOLETE. 6A6DC-92 Aubrey Dra

	Holo No. BACC-TO1
DRILLING LOG Southwestern	Fort Worth or 1 sees
Auban toka	NO SIZE AND TYPE OF BIT B" AUTOR: 6" COPE
Spillway Site with	IF WARDFACTURER & DESIGNATION OF DAILL
Corps of Engineern	Patting 1500
Corps of Durineers	***************************************
Schoonever	18 TOTAL HUNBER CORE BOTES 2
Creation of note	14 DATE HOLE   21 '07. 1975   21 Hov. 1975
	IF ELEVATION TOP OF HOLE
DEPTH DRILLED INTO ADER 13.01	10 TOTAL CORE RECOVERY FOR 17 43 100 1
TOTAL OPEN OF HOLE 20.00	down of Jogan
ELEVATION DEPTH LEGENC CLASSIFICATION OF MATERI	ALS RECOVE SAMPLE (Desire two cores has from all amorating, off all assessment
, = 0.0' to 2.0'	ho
CLAY - as described in	n inter- Employ. Fole was bailed to
2.0' to 7.0'	
. ) .크 '   எ짜	installed in boring
2.0° to 5.0° = nediz	plas for future water level observations.
to finely sandy, sli	ightly   B   ' - '
molst, non-calcarcon	
interval, slightly	lighter 2. Drilling: 8" auger
in color, sone very gravel widely scat-	fine L 0.1° to 7.0°; 6° core to tered Box ; total depth of 20.0°.
throughout.	
2 7.0' to 15.9'	A. 2.0' to 5.0'
CLAY-CHALE - soft, ra	at brom B. 5.0' to 7.0'
and gray, silty, his reathered, non-calco occasional very fin	chly [ 0.1 4. Cartons: aroous, 1. 7.5 to 8.51
occasional very fine	much_
out recovery.	L 0.4 30x 2 4. 19.0° to 20.0°
13.9' to 20.0'	
SHILE - tan with some sarbling, noft, occ.	
sarbling, coft, occ.  soft white liey inc.  Shale is non-calcar.	411340114P [ ]
and wenthered to to:	tal ',
depth. Sand lense : from 13.5' to 13.9'	: fine   '   '
grained, rust brown,	noted .
from 14.9' to 15.1'	
7. 0. 20.00	
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Mark B. to San Mark to	
	الرياني كرا و البريد و الرواز من المواد ما الدراط
DIG FORM 18:36 PREVIOUS EDITIONS ARE OSSOLETE.	الرياني كرا و البريد و الرواز من المواد ما الدراط

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1	27451	ING CC	~ <u>T</u>	Southrestern	10 3115	AND TYPE	Port	Borth Bo Auror: (	ore.	j
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-		PTH 07		20.01	19 3:64	ATURE OF	*******	~ Lung	Lacer	ļ
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- 5				(Dostanian) A		120	7,0	months of a	el segment and	L
=		-		0.0' to 2.0'			10	**		E
10	1	, 3	]			l.	Emple	1. Fole FEE	bailed to	=
•	1	=	1	. val below.		1		metrician	desta upon 4° plas-	=
	•	=	١. ١	2.0' to 7.0'			A	tic pipe,	slotted, was	E
	. ,	,-	3	CLAY		(		irstalled.	in boring water level	<u> </u>
	ì	=	1 .	2.0' to 5.0' - nedian	plas-		<b></b>	observatio		F
	. 1			ticity, brown, hard, to finely sandy, sli	shilty shilt	i i	ا . ا			F
	•	. =		moist, non-calcarcou	8,		В			E
	.	] =	图:	5,01 to 7,01 - as abo	70					E
		=		interval, slightly l	ighter	L 0.1	'	2. Drilling	: 8" wzer	F
	;	10.05		in color, some very gravel widely scatt	ent?		•	to 7.0'; 6	of 20.0°	F
•	-	=		throughout.			Box I	w.z.,		Ε.
	3	=						J. Jaron	- 601	F
•	<u> </u>	=	2			,		A. 2.0' to	5.0' 7.0'	=
	3 :	=	☱	CLAY-CRALE - soft, rus and gray, silty, big	t brot			,		E
-	ן ד	l . <del>-</del>		weathered, non-calco	recus.	L 0.1	١.	4. Cartons:	8.51	E
	4	1 =		weathered, non-calce occasional very fine		<b> </b> -		2. 11.5' t/	12.51	E
	4	ــہ ا		gravel scattered thr out recovery.	ontp-			1 3. 16.7' t	o 17.6°	Ε.
	3	1 3	₩.	13.9' to 20.0'	`	L 0.4	30× 2	4. 19.0' t	20.0'	E
	Ξ	=	<u> </u>			İ		5. Core Boz	es:	E
	3	=		SHILE - ten with some marbling, moft, occu	sional Sional	206	1	l 1. 7.0' t	13.4"	F
	<b>ਜ</b> ਂ	20.0-	関す	marbling, moft, occur soft white liny incl	usions	- 0.0	<u>                                     </u>	2. 17.4' 1	\$ 20.01	E
	3	-		Shale is non-calcare and weathered to tot				i -		E
	,#	=	<b>.</b> : .;	depth. Sand lense n	otod	<b>1</b>	1			F
	7	=	• •	from 13.5' to 13.9';	fine		١,			F
	3		} '	grained, rust brown, concretionary zone n	Iron nted	1	٠.			E
-	-	=	1	from 14.9' to 15.1'.		į		l		=
	#	-:-	1	7. D. 20.00-			'	,		F
	مسابيها ميتيسياسياسيانييات	=	]			l	l	l .		E
	-}	`=	١	** ·	•			:	•	E
	ㅋ .	تب. ا	1 1	, ,		:	١.			1
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	-] ~			Andrew Comment			100	بوشاءه مين		E
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	킈.	1 =	<b>†</b> `	l ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	٠.	1	1	1 .		E
	41	{ `=	1	1		<b>.</b>	l l	[	к	F
	Ŀ					٠.	<u> </u>		, and a	F
	-17.	1836	PALVIO	US ECITIONS ARE ORSOLETE.		PROJECT	Aub-	ry Lake .	816C-30	
	3			FF0 40 81 MF 040 85				-, -, -, -,	3,000	•

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DRILL	ING LOG	Court heart area	1031 444	*****	rt Zor		1 1 1 mm 1	]
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	- Siffy at		11	racroal.	รี รจิงรัง	hat in up told?		1
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2000.2	**************************************	8x60-702	10 101		ii'i oo	3	. <u>.</u>	
5 A44 37	CTLCC -		10 10	-	2301 6	3		1
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50.000	=======	7 CIA FACE SEAF	10 05.5	-548	120	50v. 177'	50Y. 1765	1
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L_•_1		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		127	13		4.27	1
	1 3 -			•	أمدأ			Ŀ
	3	Out to 2.0' Cuy - as described i	n Intei		25.2	1. Install-	d slotter	E
	딕	2.0' to 6.5'	- 1	. 1	_	plastic p	pe aft,r	ļ:-
	! =				A	perlin, re	near T.	F
1	1 -3	CLTX	1					E
	1 3	2.0' to 4.0' - =e44	= ples		2			E
[ .	1 📑	ticity, brown, hard to finely sandy, si	., 5110;	'		2. 2011):00	e En more	-
1		poist, mn-calsara	us. [			2. Orilling to 8.0'.	6 or 2	1.
	-			'	, ,	total dest	h of them.	1
1		interral; light bro	. T.		90x 1	J. Jaros		E
		ਛੂੰ6.5° to 13.0°			177 1	2.01	a 4.01	E
	10.01	E CLY-TINES - soft, m	ıst İ	L 0.0.	: 1 1	A. 2.0' E. 4.0' C. 6.5'	o 6.51	E
		S brown and gray, sil	147.			D. 13.0	6 8.0°	ļ-
	-==	highly weathered, a	200-		11			F
		ealcarous, occasion fino gravel scatter	red	Seq	للل	4. Carbre 1. 8.0' 1 2. 14.0' 1		F
	l <u> </u>	throughout recover	/: AP- )	Report	13ah 3	1. 2.0'	o 3.0°	Ŀ
1	基	, pears to be rewrite	24	30. 6		2. 14.0'	0 21.1'	E
		stale. Ore temas calcurate at 12.0	r.c	L 0.1'	<b></b>	4. 24.7	o 21.51	-
1		13.0' to 14.0'	•					ţ.
1					30x 2	1. 8.4	0 15.	-
1		E CONTL - port, grade E to 27, clepty to al		ŀ	!	5. Core to: 1. 8.0 2. 15.3	0 12.1	Ι.
		= satrir, annular to	ಬಾ)	L 0.3	1	3. 19.81	o 25.50	r
	20.0	angular, calcarcou	5			6. Actual	to c of	Ì
		ess/ to renetrate a	nin	i	i i	0.91 (52)	11.11 10	F
1		Jar D).			<u>.</u> 12 t	14.0"	20 20 2.1	F
1		11.0' to 25.5'			w: 3	ழ் தால்⊪ாக <b>ு</b>	nici spisi Jan izgle	ł
1		CRULE - tan with some	C CET	r c.c.	1	D. 361	e se weight	Ł
1	' ==	merbling soft, or	ca:107.a	ı	Į	1		1;
1		soft wate line in	clusion,	ļ.		<u>:</u>		F
1	; <u> </u>	Occasional mail m of rust brown sail.	ckets	<del> </del>	-			1:
1	E	is non-calcargous	and	i	!	1		E
1	1 4	weathered to total	dosth.		1	1		þ
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ENG FOR	1:-7-	<del>1</del>		PROME	<del> </del>	<u> </u>	· [=>, (=)	
MAR 71	1836 PACY	OUS EDITIONS ARE DESCLETE		ALL	rny Lak	:0	8160-3	ez
4-1	• * *	*********			,			

RECORD FRAMING-WIRK AS FUILT

300	25. 50	10.00	; 4°E	70553 8*	** **	Se. C 4	
Γ		U S ARM		NEER DISTRICT, FOR RPB OF ENGINEERS FOAT #04"H, "E445	T W	ORTH	
****	-10 01		1	RAY ROBERTS L	AKE		
				FORK, TRINITY R. ZEE			
2010	* **		EMBAN	KMENT, SPILLW	AY.	AND	
				OUTLET WORK			
*271	1465 17			LOGS OF BORIN			
		8A6C-9	1,8461	DC-92,8A6C-30	1 <u>A,IC</u>	ND 8A60	<u> 2-302</u>
5-34	· ·· ES F			INVITATION NG CACASS-82 E	3.00%	D HILL MA	0.1982
1		~		CONTRACT NO CACAGE- SA	Ų.	^ <u> </u>	162,552
273	VEE4			CALEING N. WEEP		NET. 43	1-29-
1	- em		-	1	•		• ,,

Mele No 816C-303 0.5 THEEL Port Nor DRILLING LOG PRINCE Southwe term w bit and the or elf 8" Auror: 6" Core Aubrer lake TETRO CON CETA CETA S DESIGNATION OF CARCO Spillway Site "E" Corps of Dicheren Paulir. 1500 10 - 375. muesta cont entit 7
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18 - 1 E state or controls Schooraver\_\_\_\_ 17 FLEVATION TOP OF HOLE 11,0 19 Education for muse (1998) ( . DEPTH DRILLED INTO ROCK 40.0' S. TOTAL DEPTH OF HOLE COSE SOR ON RECOVE SAVE S CLASSIFICATION OF MATERIALS ELEVATION DEPTH LEGEN 0.01 to 11.0 i. Bole was bailed to near total depth upon completion. Unable to determine where bole is making water, but anking water slowly. Installed slotted plantic pipe for water level observations. 1. Bole was bailed to յ ուհավառևակարևա Sample CLAY 0.0° to 7.0° - medium plas-ticity, brown, hard, silty to fincly sandy, alightly soist, mon-cal-. Carcous. 7.0' to 11.0' - as above interval; mre moist. 1. 11.01 to 22.01 ò 26 Kov. '75 - 17.0'
1 Dec. '75 - 16.5' CLAY-SEALE - rust brown. LLY-SELLE - rust brown, sarbled gray, soft, non-calcarous; appears to be reworked shale; scattered ferrous modulos; very gravelly and calcarous from 18,37 to 19,37 with very fine grained light rust brown sand from 19,3 to 19,6°. **重** 2. Drilling: 8" auger
to 11.0'; 6" core to
'total depth of 51.0'.
Set 3.0' of 8" casing
due to fluid loss ումիակարարական արարարարարարարարարարույլ L 1.0 Box,1 2 22.0' to '50.7' near surface. -.

3. Jars:
A. 2.0' to 7.0'
B. 7.0' to 11.0' ¢ 0.8 SHALE , 22.0' to 40.7' - light tan 22.0' to 40.7' - light tan to grafish tan, soft, mon-calcarous, bedding angle approximately 50 from horizontal, occasional ferrous module with distinct iron concretionary sone from 25.5' to 26.0'; very fine grained light rust hown sandstone from 35.8' to 35.0' and from 37.4' to 37.7'; approaching base of extensive weathering from 36.0' to 40.7' as waldened by intermittent short intervals of light bluith-gray shale. . Cartons:
1. 11.37 to 12.27
2. 16.07 to 17.07
3. 22.11 to 25.17
4. 28.57 to 29.57
5. 35.17 to 35.87
6. 39.77 to 40.77
7. 45.57 to 46.27
8. 49.77 to 50.77 L 0.8 Pox 2 3 L 0.0 8. 49.7' to 50.7'

5. Oure Bixes:
1. 11.0' to 17.5'
2. 17.5' to 25.5'
3. 27.5' to 25.5'
5. 27.5' to 33.9'
5. 33.9' to 39.0'
6. 39.0' to 44.3'
7. 44.5' to 50.7' Box 5 ć 墾 C 0.2 30.0 bluith-cray shale. 40.7' to 50.7' - shale is light bluish-gray, soft, slightly slity, very for-siliferous (muserous Box 4 siliferous (mmerous fossils along parting at 44.3' and in Carton No. 8 at 49.7'); bedding is near horizontal; shale is calcarous from 40.7' to DOX 5 calcarous from 40.7' to recovery depth of 50.7'. L 0.0 **3** 6 -L 0.0 ٠, ao x 6 . .\* 77. (خير L 0.7 C 0.4 ٠., 50.00 The same of the sa

DRILL	ING LO	C D PT	Sauthrastan	INSTALL	41:00
1, \$40,667			Southwestern	m Mig	410 11PE 0
1 COCATION	(Come in	CCA Fax	147)		
2 DRILLING	AGENCY		ite "F"	II WAR	Palling.
-	700	3 0 1	ngineers	13 707	L TO OF OY
E 444 6 07			BA6C-304	18 707	L HUNGER C
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50 ventre	0	***		16 DAT	
7 THICKHES					AL COSE REC
. DEPTH OF			49.01 51.01		AJURE OF IN
ELEVATION			CLASSIFICATION OF WATERS	u	S CORE SO
<u></u>			<u> </u>	<u></u>	
٠.	ΙΞ		0.01 to 2.01	,	1 
١.	-		CLAY - medium plantic brown, hard, milty	ity, to	-
;	, =		finely sandy, slig moist, mon-calcare	atly	<b>l</b> :
	=		*		1 1
	=		2.0' to 15.7'		1 7-1
1	1 =		CLAY-SHALE		
1	=		2.0' to 7.0' = rust  soft, non-calcared	18;	1.1
. ·	=		appears to be resortate	rked	B
1 :	10.00		4.0' to 7.0'.	LEGIE	0.6
1 .	=		7.0' to 15.7' - as		'
1	] =		scribed above with gray marbling and		<u></u>
Ι.	1 3	實,	, tered ferrous modu	les.	1 1
1 .	=		13.7' to 14.0'		0.2
'	=		SANDSTONE - very fin	i ersi	R R
	-		ed, light rust bro soft, well consoli		
1 .	] :	WE VE	mn-calcareous. ,	x	1 .1
1	1. =	国了	14.0' to 17.0'		L 0.01
}	20.0		SHALE - light ten to ish ten, soft, sil	ETAJ-	
1 .	200	AVCIVE	mn-celcarmus.	٠,,	<del>                                      </del>
1 .	3	3.32	17.0' to 17.6'		1 · B
1 .	1 3	Sind	SANDSTONE - as descr	bed	r 0.0.
1	١ ـ	擂.	in interval 15.7'	w 14.	4.
1	=		SHALE - as described	above	J
1	'-		19.81 to 20.21	-	
1 '	1 , :		SANDSTONE - as descr	ibed	L 0.1 B.
1 .	\	5	epoxe.		<b> </b>
1.	1. 3		20,2° to 20,6°	• **	1.
1 '	.50.0		SEALE - as described	*pove	
1 -	' :		20.61 to 22.61		C 0.5'
· ·	-	<b>=</b>	SANDSTONE - as descr above with approxi	cately	250
١,	1		50 from horizontal ding angle.	bed-	1 1
1 :	7		22.8' to 32.7'		L 0.9.
1. 2			SHALE - as described	EpoAe	
1 3			- approaching base o	£ 82-	
1 :	-		28.7' to 32.7' as	evi-	100
~	1		denoed by intermit whin beds of bluis		C 0.51
"	40.0	12	Distinct iron concre	rtion-	1 '1
':	143		ary some was noted in 28.7' to 29.2'. Sau	TOR.	
1	4. 2		becoming calcuratus	below	
1.34	1		24.7	• •	. 1 11/2
$T \in \mathbb{C}$			32.7' to 51.0' E		· 1
15,0	1::	8	SHALE - unwerthered	, soft	네 조님 -
1 1 1	' ነ		bluish gray, varies	r file	
×,	3:-	擅	ly sandy, fossilife calcareous,	ous,	ن لنخا
	1			٠.,٠	. 1 - 131-6
			小菜 粉碎	, , , , , , , , , , , , , , , , , , ,	004
	1 .*	7	T. D. 51.0' -		
*~	1. 7	∃∷′		/3/	
1 .	1 6	∃.	1. 1. 1.		*   " *   #*
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T. D. 51.01rene de

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				Maja Na	816C-30-	
Southern	INSTALL	A FIGO		28	846C-304 SALET 1 OF 2 SHEETS	
Southwestern			Port '	AND AND THE	Coce	
	1				,	
	12 5446	PARTUAL	111111	ATION OF BAILL		
neers	18 7074	Tell!	r 1500	0	0	
1 8460-304			CORE DO			
inover	IL CLEY	ATION 60	0V48 VAT	th po		
Otec PASH VERT,	16 DAYS			V 100	Dec. 1975	
2.01			P 07 HOL		<del></del>	
49.01	19 MGH	L COIE P	INIPECTO	Dana S	7.8	
CLASSIFICATION OF WATERIA	<u>.                                    </u>	3 C04E	00 x 00 T	MERY		
(Decemberson)	-	ERT	110	(Draine inc. no.	H stationer	
.0° to 2.0°		,	10	** 、		-
LAY - Redium plantic	dty,		Sample	to Hole was	balled to	_
finely sandy, slight	to		A	completion	. Tater !	=
moist, non-calcared	us.			conpletion	ours after at 16.0'	_
01 to 13.71	**		اخ	Bole was	eckfilled.	-
LAY-SHALE	; . i		3	2. Drillin	g: 8º miger	_
2.0' to 7.0' - rust	brom.			to 7.0'.	6" core to	=
appears to be remor	ked	٠,٠	[.*]	3. Jares		=
shale; more moist :		0.6	Poz 1	1. 2.01	to 4.01	Ξ
7.01 to 15.71 - as d			,	B. 4.0		=
scribed above with	204 e					Ξ
tered ferrous modul	C21-		ا—ا	2. 1235 3. 17.8	to 13.51 . P	=
	- T*	G 0,21		4. 23.41	to 24,4'	=
"1, to f4.0.	أنسا		1 -	5. 27.7° 6. 31.0° 7. 39.5°	to 32.01	Ξ
ed, light rust bros	m,	•	Box 2	7. 39.5° 6. 45.5°	to 40.5'	=
mort, well consolid	lated,		1 .	9. 50.01	to 51.0	
,01 to 17',01'.	• ;	ļ		5. Core E	Issi	Ē
ills - light ten to	gtat-	r 0.01	J	1. 7.01	to 12.5' . i	Ε
ish tan, soft, silt	ž.			3. 18.91	to 24.7'	=
mn-celcarmus.	_	·	Bo .	. 4. 74.71	to 20.31	E
MISTONE - as descri	he4	L 0.0'	Box >	. 5. 30.3' . 6. 36.0'	to 41.7'	E
in interval 13.7' t		۴. ````	."	7. 41.7° 8. 47.3°	to 47.3'	E
6' to 19.8' ,		ٔ ا	1		~ / · · ·	F
ALE - as described	above.				,	E
81 to 20,21 -	. •		]_ :	1	7.	E
SECTONE - as descri	bed.	· · · · ·	Dox 4	; ' '	100	F
21 to 20.61	1.	<del>                                     </del>	1 .	1.74		E
ALE - as described	above.	١.	], `	,,,	1,	E
6' to 22.8'		0.5		1. 3.3	<u> </u>	Ē
NOTONE - am descri		, ,	1	'		E
ebove with approxim % from horizontal	ately bod-	-		1	<b>4 y</b>	E
diag angle.		ļ		1 : .		۴
9' to \$2.7'		£ 0.9	ነ .			E
ALZ - as described	Above,	-	1	والمنتبية المالي	New Property .	E
approaching base of tensive weathering	1102	1	;n.	1:	14.32	E
28.7' to 32.7' as a tenced by intersiti	rvi- lost	c 0.5	Dox 6		Z	F
thin beds of bluish	ET4y	۳,,	١.	1	٠	E
stings iron concre	tlos-	<u></u>	1. 3.	137 7.2		E
y some was noted f	ros le	: .	.	3.3	1.00	E
calcaracta gaines	peron	r 0'0	10%	<b>计数学</b>	Section .	F
•71		1	Dox 1	المعرورة والم	Carrier of C	E
7' to 51.0'			1.35	<b>为技术</b> 法	ite is not	E
ALL - unwathered, vish grey, varies	soft,		11	17 8 25	, , . (	E
my to milty to year	y Sine	L 0.0	1 3 8	1. 3. 3. 5.	2.5	E
sendy, fossillier	ous,	بنا		100		۴
** ***********************************	· • • • • • • • • • • • • • • • • • • •			135	TO'Y S	E
<b>发现的</b>	$\langle c_j \rangle$	0 04	lox		istalia 🔊	E
- T. D. 51.0	. M	1		1 200		F
	1	[%	1.4	1272		F
Share See See	/v".			1		F
11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1000	. '				

					auco.305	
				Holo Ho.	816C-305	l
DRILLING LOC OVINOR Southwestern	PASTALLA	_	ort To	rth	6° COFE	
L PROJECT	10 SIZE A	10 11PE	OF BIT	8º Augor	J- W/	İ
Ambrey take L LOCATION (Communes on liming) Spillway Site "F"						
D. DRILLING AGENCY	1	_7	allin	1500	1500000	i
Corps of Engineers	19 TOTAL	20.000		100100110	0	ı
E RINE OF DRILLER	14 TOTAL	HUMBER	CORE 00	161	1	ł
- Saboamover	IL ELEVA		11744	749	9w/ 1150	1
Entertion or note	10 DATE		13.1	Sec. 1975	4 Dec. 1975	1
THICKNESS OF OVERBURDEN 6401	17 ELEVA	CORE 81	COVERY	704 SORING 1	00 1	1
e DEPTH DAILLED INTO ROCK 24.01		URE 07	HSPECT	Howers	Y. Jane	4
FOTAL DEPTH OF HOLE 30.0*	1454	CORE	01 02		ARRS see loss fout of to 18 separate and	]
ELEVATION DEPTH LEGEND CLASSIFICATION OF MATER	``````	ecove ecove	1	months of	S. H SIGNING	+
0.0° to 6.0°	. 1		ro r	**	e bailed to	E
CLAY		ŧ	azple			E
. = 0.0' to 2.0' = mod		. [	A		n and slotte	ur.
tickty, hard, silt finally sandy, bron				ed for w	ster level	E
slightly moist, m	D-Cal-	٠.	В	observat	ion. Tater ter 24 hours	þ
carcous.		.		at 10.9	•	E
2,0' to 4.0' - as a interval; slightly			C		•	E
carcous.	, 1	۰۵،6 د		1	ing: 8" sugg	Ţ-
4.0' to 6.0' - yel	TOAT 20	. 0.0	Bóx 1	2. Drill to 7.0'	6° core to	E
10.00 brom, sedius pla	ela saudi			, total d	epth of 30.0	F
some scattered fin	ne 6∓3∽		-	3. Jars:	;. ·	E
\ \ <del></del>	alcaro.	·		3. Jars: 4. 2.0' B. 4.0'	to 4.0'	=
6.0' to '12.0'	*		٠.:	. c. 6.01	to 7.0'	E
2 CLA-SHALE - rust b		. 0.1	30x 2	i Carton	. ;	F
' = Souttered gravel	and				4. 0 51	E
ferrous modules, calcareous.	non-		}	2. 12.91	to 13.9' to 15.5' to 22.0'	E
1 1 ===== '	,	•	Į .	4. 21.0	to 22.0'	F
SEALE AND SELECTIONS	- mate	•		l .	to 30.01	E
is dominant: ligh	t ten to	0.4	-	5. Core 1 1. 7.0 2. 12.6	DZC3:	E
graylah tam, milt	y, 200-		1	2. 12.6	to 19.2	E
terrupted with on thin beds of sand	casional	١,		3. 19.21	to 24.81	E
thin beds of send motably from 14.5	istones,	t 0.4°	100.	******	~ ~~,	F
17.3's sondstone	is light	٠,	1			E
rust brown, very grained, soft and	inon-	<u> </u>		<u>.</u>		E
calcarmus. Mari	aua thic	-	1	'		E
1 1 ===== muntles === 1 01	(Carton	2 0.11	Box 4	d	•	=
				4	•	E
1 20.71 1.81		H	1 1	١.	, ,	E
50.0 in this boring w	as logged	0.0		] · ·		E
1 24 5 4 1 1 1			.   .	1	-	E
[3.0° to 50.0°	•	ì	ŀ	* * *		E
SEUE - mort, light	ty. 2018	1	1	}	•	E
-   very widely scat	tored	l	1			E
selenite: 1703	COUCLASTIC				•	E
ery zone, very comed from 27.47	to 23.91	. شر	7.	12.0	المستقيمات المج	÷Ē
Shale is till from this paint	n total	epth.	1.	1	. 10	. E
and is weathered	through	pt.	1.	. '.		F
2. D. 50.0°		.		1		E
ENG FORM 1836 PARTIOUS EDITIONS ARE OBSOLETE		PROJEC	Ϊ	ــــــــــــــــــــــــــــــــــــــ	**************************************	عــ
				abrey Lake		

DRILLING LOG OF ING L Ambrey La Com-OFPR OF FALME Set or n ----S DEPTH DRILLED INTO ROUT S TOTAL DEPTH OF HOLE ELEVATION DEPTH LEGENO 20 4 2

				Hele No.	81EC-305	
	INSTALL	TION	-		0 1 1mters	ı
restore			Port E		6° Core	1
	10 SILE	HD TYPE	OF BIT	Be Augor	.,	1
						ł
<u>. Z., </u>	il myan	FACTURE	rs other	44164 0F 641LL		1
Deers	13 7074	10 0°	OVER	10.510.050	0	i
846C-705					<del> </del>	1
	16 TOTA	ATION 65	OURC D	748	l	1
<u>,                                     </u>	<del></del>		1974	1760 14	010 LETED	1
BES. FROM YEST.	16 OATE				Dec. 1975	1
.01	17 2624	A7104 TC	# 07 HO		× 4 1	1
1.0'	10 707	L CORE P	PROVER		& D-	1
0.00	17			6Yourus	H. Jogar	4
SSIFICATION OF WATER		RECOV-	SAMPLE	(Draing tons, or equipment of	and he are from he at	1
4		EAT	70			1-
to 6.01 1	,		ro	** .	- 24124 10	Е
		ĺ	elqza	1. Role wa	u balled to I depta upon	E
				manletio	n and slotte	4
' to 2.0' - mediu mity. hard. milty	to	``	A	plastic r	dpe install-	=
city, hard, silty nely sandy, brown				ed for wa	ter level	F
ightly moist, mor	-cal-	,	В	· level aft	on. Water er 24 hours	F
reous.		•		at 10.9'	•	Е
to 4.0' - as at terval; slightly	970		C	) ·	:	Е
secart arrentra		Γ		i	***	E
	wi sh	<u>ቱ</u> 0.6י	J	2. Drill:	ing: 8" augo	:: =
om. sodium plast	dcity.	l	Box 1	to 7.01		
to 6.0' - yello oun, medium plast iff, silty, finel	y sand	y. *	1.	1049	pth of 30.0	+
se scattored fine	<b>€</b> 23-	'	۱ "	3. Jars:	, ×	F
l, moist, mon-cal	Careon	<u></u>	4	3. Jars: 8. 2.0° 8. 4.0° . C. 6.0°	to 4.0°	Ε
to '12.0'		١.	h	B. 4.01	to 6.0'	E
-SHALE - rust bro	mo,	.4			. i.c	È
ft, some gray min	zed,	L 0.11	30 x 2		31	Þ
attered gravel as rrous modules, m	1 <b>d</b> .	' '	ŀ	1. 7.51	to 8.5' to 13.9'	F
Jerieona	,,,,		-{	3. 14.5	to 15.5'	E
•	_	١.	1	4. 21.0*	to 15.5' to 22.0' to 30.0'	-
to 21.0°	•	١.	i i	5, 29,01	to 30.0'	þ
E AND SANDSTONE . dominant; light	- stale	L		). Ore B	nzes: "	þ
dominant; light	TAN TO	0.4		1. 7.01	to 12,61	F
rayish tam, silty deareous, Shale	is in-		┨	2. 12.6	to 19.21	E
rrupted with occ	es iona)	4	Dox 3	3. 19.2°	to 12.6' to 19.2' to 24.8' to 30.0'	Е
in beds of sands tably from 14.5	tones,	2 0.4	ין":	1		
7.3°; sandstone i	ន ឬ ដូច្នា។	\$ S	-	1	_	þ
ist hown, very f	ine		1			þ
rained, soft and Licarcous, Maxia	mon- un thic	<del>,</del> -	1	1		F
			1	1	* *	E
option was 1.0' (	Carton	F 0.1	Box 4	t l	_	- 1
o, 3 from 14.5' t	4 15.5		1	4	•	ŀ
pes without shale uption was 1.0° ( 0. 3 from 14.5° t hale was dominant 0 20.7°. Last as n this boring was row 20.7° to 21.0	ndston		7 7	١.		ŀ
this boring was	logge	46 0*8	'			ı
ros 20.7' to 21.0	)*• .	·		٦,,	•	I
to 50.01	• •	ļ	1			E
LE - mrt, Light	٠	1	l	1		- 1
re rish tana silty	. 2020	1			•	١
rayish ton, silty er; widely scatte elemite; iron on	red		1	1		
elenite; iron o	ncreti	op-	1 .		*	
ry mone, very call	23.9	1		1:20	4	:
hale is slightly	calcar	<b>ພິພ</b> ີ.	`  %'	;		1
ry none, very cal oted from 25.4° thale is slightly row this point to and is weathered	total	epth	١.	1 "		-
nd is weathered t	raronta	ort.	1			
ž. d. 30.0° -		-1	1.	1		
		P80/6	ــــــــــــــــــــــــــــــــــــــ		HOLE TO	٠.
		I SHOTE	61	A •	1""	30

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DRILL	ING LOC		Southeest	·m			ort to			_	<del>"</del> 4	
PROJECT		•			II BAYUN	PER CO	CAY AIGE	t-2 0. Vance	,,0	12:E	-{	
I LOCATION	Aubrey						,				_1	
	Spiller	y 31	te "E"					441-64 67 BAIL			7	
3 ORILLING	AGENCY					iling	1500_					
1 -01 -01	COPPS O	1 11	rineers		' ZOZA		es fire	100000	-	0	٠,	
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S. HAWE OF					15 65 64						-1	
6 DIRECTIO		3cb:	omver					-740	11000	£160		
					14 DATE	₩OLE	4 1	Dec. 1975	5_Dec	. 1979		
			•		-	41104 TO						
7 THICKNES	S OF OVERBURE	064	5.01					7 FOR BORING	100	4	<b>¬</b>	
		CK	25,21		10 SIGHA		INSPECT	34 4/	47	7	ᄀ	
. TOTAL DE	PTH OF HOLE		50,21		<u> </u>		<u> </u>	_demen	بنت	6gas	4	
ELEVATION.			CLASSIFICAT		44.5	ACCOV	POX CO	(Dellers took	-	(f	, [	
ELEVATION.		~1	(0.	escription) A	- 1	RAY	NO.	monte mag.	01 & 2 S 01.	*******	i	_
<del></del>	<del> </del> -						160	**				=
1	1 7 .	- [ '	0.0° to	5.0"	l		Scaple	1. Bole	was h	4164	ı, t	=
l l		- 1	CLAY		- 1			near to				_
1	l ∹i			2.01 - zedi:	1.4	_		complet	ion er	id slo	100	_
	1 = 1	- 1	141011	Light brown	a hand	_	A	plastic				-
1	11	- 1	ailty.	endy, slich	hily	•	l ^	stalled	for	water		_
1	l ~ 1	- 1	maist.	sendy, slig con-calcaro	oue.			level o	paers:	ation.	- 1	=
1	1 4==	=						1			ŀ	=
1			2.0' to	5.01 - aedi	m blos	-	В	1			٠. ا	_
1	· -	≡	ticity,	light brow	s. very			l			- 1	=
1	) <del></del>	33	Btille,	ilty, slis	11.13			1		<b>.</b> .		=
	-	=	20156, 1	uou⊷dergesse	ous,		1.	2. Drill	ing:	Se an	ger	1
1		1	5.0° to	7.01		•	Bux	to 7.0		core v	٥. ا	Ε.
		2		-		L 0.5	1.	total	epta	01 70.	٠٠٠	-
	10.01	<b>⇒</b>	CLAY-SHAL	E - rust br	0.40		Ι.	3. Jars			. !	-
1	===		and gra	7. 20:t, si	1t7.		1	A. 2.0		01	`	E
1		=	appears	to be rmo	rkod		.l	B. 5.0		0.		<u>-</u>
1		=	shale,	ion-calcare	ous.		1.	1 2 7.0	w ,	••	*	=
	===	<b>=</b>		40.54		l		4. Carte	255			F
1			7.0° to	19.5*	,	G 0.2	١.	1. 8.0	) to	9.01		느
i i	_ X	Ter	SHALE AND	SAMOSYONE	- shale	`	1	1 '2. 14.	5° to	15.51		E
1	3.3	2	is domi	nant; light	ton to	ĺ	Box	3. 20.	9* to	21.91	•	F
1	1. 32		gravish	tan, silty	o non-		J	1 4 24	5 to	25.5	•	<b>F</b>
1	-	=14	calcare	ous, Shale	8 13		1	5. 28.	2" to	29.11		E
1		=	interru	pted with o	00003101	1-	1	1				E
			al beds	of sandate	ne,	L 0.1	4	5. Core	Boxes	):		E
1	1	<b>=</b>	notably	froa 12.4	19.5	1		- 1. 7.	0° to	12.9'		F
i	<b>  1</b>		with as	wine thick	thess of	١ .	1	2. 12.	9' to	18.6		E
1 .	20.00		1.5' II	os 14.2' to	1201.	)	1	3. 18. 4. 24.	6' to	24.21		E
1 `		$\equiv$	(see ca	rton go. 2	). San	<del></del>	Box	7 4. 24.	2' to	י2.00		E
ĺ	1 =	3	5W20 1	ne trepred	. woll	γ.,	1	1				F
١,		쓹	very 11	dated, 20f	t. and	C 0.1	el .	1 .			,	F
1	·l 耳■	===	man-cal	carcous.	Shale &	d d	1	l	_		,	E
		=	desori	bed above i	s doct-	1	1	1 .	-			上
1 •	-		nant be	alow this p	oint	1		<b>-1</b>				E
1 .	1 1			at sands to			<b>⊣</b> `	1 .	٠.		•	·F
1 .	」、∓⊒	블	this is	aterval log	ged	1	1	4		•	*	<b>F</b>
1	1 ===		from 19	9.3' to 19.	5'.	C 0.3	5√ 20×	9 "	•		• ,	F
Ι΄.	1 #					1	1	1 .		•		E
١.	<u> </u>		19.5° to	50.2°				1	Ξ,	- •		E
1. "	1 -10	5		licht tan t	o crav.	1.0	_]	4	*		· į,	·Ε
1	·I = 15	괻	(nrein)	ninontly gr	av þe-	1. 0.	7	1 '		•	• •	F
-	30.0°	=#	low 25	.O'), silty	. scat-	ـــــــ	_	<b>-1</b> `.→	٠.		- 1	=
١.	,∃		ternd	mall crost	als of	1	-					E
	1 - 7	Į	, seleni	te, slichtl	A cay-	i					÷	F
-	1 4		carxou	5; 110n CO	crerior	1	۱.	. [				F
] '	1 =	1	ರ್ಷ/ ಭ	ne, very co	norcol	4.	1	1				E
1	1 ±		mated.	fro= 21.9'	to 22.4		1	1				느
- 1	1 -		Soae v	ery fire-pr	rained	. 1						F
1 .	. <b>=</b>	- 1	gray s	ery fino-pr and interb	dded w	42	.					F
:.·`.		· • • •	j.shale	below 29.0	• 202	1	. 1 .		: : :			, <u> </u> _
71.76			· %12 467	thered to	to tal	:=	:   ':.	.   LECT				E
1.77	Π.Τ.		* dopth.			1 -	1		٠.			F
- 4	1 7	_	1		•	1	1	1 .			٠.	F
•	: 1 .7	•	ļ 1	. D. 50.21.		-1	٠ ١	1	٠,			F
1 .	.1 =		ł .	, i		1 .	. 1	1.		٠.		E
<u> </u>	1	• ••				-				I move 6	NO.	

<b> </b>	<del></del> 1					-						
374	00 40	ACTION	ACTION DATE DESCRIPTION OF REJISION									
Γ		U.S. ARM	J.B. ARMY ENGINEER DISTRICT, FORT WORTH									
l			co	RPB OF ENGINEERS FORT WORTH, TEXAS								
51150	MED 07:		RAY ROBERTS LAKE									
l		-	•	FORK, TRINITY RIVER, TE	_							
7940	4 87			KMENT, SPILLWAY		J						
l			CINDAL	OUTLET WORKS	AITO							
-	E = E > 97.					ì						
			LOGS OF BORINGS									
<u></u>			3A6C-303,8A6C-304,8A6C-305,AND 8A6C-30   INVITATION NO COLON 63-82-82-82-82-82-82-82-82-82-82-82-82-82-									
30.64	11TTED 01	•										
17.0	NEE #			CONTRACT NO DACWES-12-C-00	SHEET NO	SEOVENCE						
l				Daniel Money	04	33						

TO ACCOMPANY FOUNDATION REPORT

Port Both or 1 setts to 11 setts or 1 setts Delities tos 1 ... Dispenseus Accres tare THE SECTION OF SECTION SHOULD Spilled Size of Palling 1500 Polit of the man or some we \_\*MC~\_227 Trees on the Section moves Trends Course. 13 ELF ANION OF AF MALE
13 FOF AL COME RECOVERY FOR SPAINS
14 TORAL VAN OF INSTITUTE OF THE STAT - 443 -----TOTAL DEPTH OF HOLE ELEVATION DEPTH LEGENC No in pla 0.01 to 4.5° Bole bailed to near total depth upon coxpletion end slotted plastic pipe installed for water level obser-GLY - meding planticity, brown, hard, silty, sandy slightly moist, non-coloa ŧ 4.51 to 10.01 vation. CLY-GRAIL - rust brown, some gray mixed, soft, appears to be resurted shale, scattered small ferrous modules, non-cal-В Drilling: 6° auger to 7.0°; 6° core to total depth of 25.0°. 1 · · PEZZIA. Ðх 10.0' to 24.7' 10,00 to 24.7'
SEALZ, SILESTOIE AND SIMPSTORE - shale is light tan,
some gray sarbling, soft,
variously grades into
thin bods of allitrone
and very fine grained same
stones; light rust brown
and monaclerrous. 3. Jars: A. 2.0' to 4.5' B. 4.5' to 7.0' արարդումում ուսիսակատիսականի արարարարար Cartons:
1. 7.7' to 6.7'
2. 12.7' to 13.5'
3. 19.2' to 20.0'
4. 23.0' to 24.0' 2 and non-calcurous,
Maximum thickness of sandstone is 0.0° from 10.3°
to 19.1°. Lest cands one
logged this interval from
22.0° to 22.3°, brown,
fine grained and calcursors. Ъx . Core Boxos: 1. 7.0' to 12.7' 2. 12.7' to 18.5' 3. 13.3' to 24.7' 20.0 nine grained and calcarr Shale as proviously de-sorthed becoming gray, alightly calcareous be-low 22.51. Iron con-cretionary sone, very calcareous, noted from 24.51 to 24.71. Poz ' L 0.3 ī -r. D. 25.0'-. ENG FORM 1836 PREVIOUS ECUTIONS ARE OMOLETE. 816C-307 inpled Toys

(TRANSLUCENT)

DRILL	ING LO	c ذ	vikos Southwestern	WILLY		P	ort to
1 4407551			y Lake	W MIE	100 TYPE	OF BIT S	THE PARTY OF
T COCKTION	(Comes		way Site "E"				HATIOH EF BAILL
L ONILLING	ABERCY			1	Fei	ling I	<del>200</del> 7
& HOLE NO.	(A 0 000-	wrps	of Engineers	12 7074	2.7.0%	SY THE	1
L HAME OF			.   8A5C-308	14. 707	L must	-	0x88 . 3
6 DIRECTIO			MAAL	IF CFE	Ation OA	OUND TA	12A 01
50 YEATH			DEG. FROM YEAT.			19	Dec. 1975
J. THICKNES				17, 8481	ATION TA	P 0 P HOL	
. DEPTH OF				10 3161	AL COME A	INSPECT	on see a see
9 TOTAL DE	PT# 07	HOLE	20.61	<del></del>			3586
ELEVATION	DEPTH	LEGENO		ALE	RECOURT	POX OR	(Draine then, per
<b></b>			0.01 to 3.51			30	**
} '	\ ` =	1	CLAY - medium planti	aity.	1	Sasple	total dept
1	=	]	brown, hard, silty	to			pletien an
1	=		brown, hard, silty finely sandy, slig moist, mon-calcare	htly	٠.		plastic pl
} ' '	=				Ì.	3	for water wation.
}	=		3.5' to 4.5'	. `		٠ ١	
•	-≣		CLAY-SEALE - rust br	ows to	1	-c:	] ]
ł	=		reddish brown, son soft, gravelly (con mostly of small fe	abosed	<del> </del>	<del>├</del>	
}	]=		mostly of small fa modules), some cal-	TTOUS	]	1 *	2. Drilling
		عا	Examples.	OM AD CO.	,	eox 1	total depth
1 :	10.05		4.5' to 20.6'	·	L 0.4	1 🛴	5. Jares
1	=	KODOM	4		1		A. 2.0' to
1	=	20000	CALLE AND SANDSTONE dominantly shale,	Light	-	- 1	2.3.5' to C. 4.5' to
i	] =	27477	tan to grayish tan	, soΩt,	1 .	<u> </u>	1
	-		non-calcarsous with ruptions of light			:	4. Cartonar
1	] =	2	brown, fine grains stone noted at the	d sand	· L 0.5	20x 2	1 . 2. 14.4° tol
1	-		lowing intervals:	10.51			3. 19.0' to
1 .	1 : 3	1757	to 11.0' ≻ 11.5' to	12.31	ıl 🗀	•	5. 'Core Boxe'
1	-		12.8' to 14.9'; 16	aine	C 0.9	4	2. 12.8' to
(	=		ucoraclas viidila	# Cros	1		5. 20.0 6
(	∞.0 <u>.</u>	<b>2</b>	17.2' to total dep Iron concretionary	10. 2018.	1	æx ∑	. ,
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1	] _	4	to 20,41.		1	.:	
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ENG FOR		E	<u> </u>				<u> </u>
ENG FOR	~ 1836	PREVI	OUR EDITIONS ARE OBSOLETE.		PROJE		roy Lake
			(TRANSLUCIAN)			AH 02	and Treat A

Orvivos

(TRANSLUCENT)

		_				Hele No.	_ المحتمد			
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CING COOL		Southwestern	1		<u>F</u> 9	A 4110000 68		i		
. At	aptel	Lake	IN MIC AND TIME OF BIT BY AUCET 6" COTE							
* (Cominarie	-	<del></del>						l		
3	billa	y Site "F"	IE BAR	725578	F 2 8 7 8 7 8	TATION OF BAILL		ı		
4 AGENCT		f Dagineers		ni	line I.	XV	-	ì		
(A , soom on	*****	alet a	12. 7474	1.7.2	****	1	0	1		
		.   8A6C-308		L matt				l		
DAILLEA	eboons		10. 101/	A TIME BR		48 . 00		]		
W OF HOLE					10144	760		1		
-		PEG. FROM YEAT,	M. DATE	1JON 5	9 1	973 9	Pega_1975	1		
			17. 6561	ATION TO				}		
11 07 GVERBU		3,51	14 700		COVERT	FOR BORING TO		1		
TILLED HATO		17.11	10 1461	ATV46 01	## 3P8E1	×77 4	4 4	1		
CPTH OF HOL		20.61		`		denner s	1. Jagar	1		
DEPTH LEG		CLASSIFICATION OF MATERI	u	a Copi	202.00	(Drilling 1800, stell popularité, éta.	The design	Į		
1.1	. 1	4	i	CAT	[ ** ]	Beatle of	× 140	<b>L</b>		
	10	0,01 to 3,51			¥0	**	•	E		
: ≓	1	×		1	a ple	i. Bole bal	led to near	E		
	- 1	CLAY - Redium plastic	Try,			total dept	primar con-	F		
	- 1	Analy and sitty	10 41					F		
Ⅎ–		hrown, hard, silty finely smody, sligh moist, mon-calcared	us.	ľ .	اـــــا	blessro br	pe installed level obser-	ቻ		
<u>-</u> ]E	TAME:			i	[ 3 ]	Astion.	TALET COMEL	F		
-15		3.51 to 4.51	•			4EFTOR*		E		
75	<b>3</b>	CLAY-SHALE - rest bro	4 -	<b>l</b> '	[, )			E		
		Teddish men and	-C 20	l	·c:			F		
· <b>=</b>		reddish brown, moze mostly of mall fer	men'	<b> </b> -	<b>├</b>		* *	F		
		mostly of mall far	TOUR	1	ا ب	2. Prilling to 7.0'; 6	: Or suger	F		
	7	modules), some calc	ALCO AT	!	1,	to 7.0'; 6	ore to	E		
` ∓≣	U	granules.		1	oz 1	total dept	h of 20.61.	E		
ار،ور			* *	1,0,4	1 * 1		<i>(2</i> )	. 🗀		
⊐লি	WII 4	4.51 to 20.61	٠.	i '	1 1	3. Jares A. 2.0' to		F		
=======================================		SHALE AND SANDSTONE -	nre	l	1	2.5.5° to	4.59	F		
	::::::::::::::::::::::::::::::::::::::	dominantly shale, 1	imi		· · ·	C. 4.5' to	7.0	=		
-166	5.7	tam to graylah tam,	moft.	١.	<b></b>			E		
720		non-calcareous with	inter	٠.	١.	4. Cartone		E		
	77.15	ruptions of light r	wet		80 x 2	1. 8.4* 1	د •4₄9 ض	F		
===	2	brom, fine grained stone moted at the	sand-	دوه عا	Box 2	2. 14.4"	b 15.4' `	F		
		stone noted at the	fol-	i i	1	3. 19.01	io 20₊0° √	F		
-	量量	lowing intervals:	10-5"		<b>∤</b> ;			E		
		to 11.0' - 11.5' to 12.8' to 14.9'; 16.	12.51	1	1	5. Ore by	test :	٠Ŀ		
-78		17-21. Shale herrs	122	0.9	4	1. 7.0' 2. 12.8'	12.5	E		
宝		slightly calcaroous	Cross	1	١ .	5. 20.0	20.0	E		
),0年	3	17.2'. Shale become alightly calcarcous 17.2' to total devi	<b>&gt;</b>	1	1	), D.O.	m 50.00.	F		
" <del>"</del>	Ħ	Iron concretionary	me,	L	DX 3	1 .*		F		
='-		Asia calcareous In	a 20.0			1.		F		
. 1	- 1	to 20.41.	J				, ,	느		
` <u>-</u> ]				I	1 :			E		
, 7	<b>-</b>	T. D. 20,6'		1	1 .	13.		iΕ		
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36 .	REVIOU	E ENTIONS ARE OBSOLETE.		PROVE	<del>~</del>		MOLE NO.			
		(TRANSLUCENT)		•	mpr	or Lake	, erec-2	08		

					160-309
DRILLING LOG Chyribon Southwestorn	INSTALLA	TION TO T	t wort	. 6	1 0-11
PA01621	P. HEE A	#0 TYPE	OF BIT	S. Ayrering	core
Aubrey Lake LOCATION (Communication of Signal) Spillway Site "F"				LYION OF BAILL	
Corps of Engineers		alling	1500		mm114000
846C-309		HOUSE L HUWSER			
Schoonever	IF Grea	ATION SA	OVED SAT	ER	25.576
. DIRECTION OF HOLE	10. DATE		lio t		000, 1975
THICKHESS OF OVERBURDEN 4-51	17 8187	ATION TO	COVERY	FOR BOSING	100 1
TOTAL DEPTH OF HOLE 15.0°	79 310 11	TURE OF	INSPECTO	Lung	Losse
ELEVATION DEPTH LEBEND CLASSIFICATION (	P MATERIALS	ACCOV.	103 OF	REMARK	hand a stand
<u> </u>				<del></del>	—— <del>-</del>
0.0' to 4.5			No Smpl	i. Hole was near total	anth udda I_
CIAY - medium brown, hard,	ailty to				
finely sandy sandy solist, become	, slightly ing more 2.0' to 4.5'.		A,	for water 1	evel opser
acist from alightly cal	2.0' to 4.5'.		$\vdash \vdash \vdash$	vation.	, ,E
4.5' to 9.		, '	В		,
	appears to be	1			8. misas E
TOTAL TOTAL	ale, rust led gray, soft	Loss	. 4	+4 7.01+ 6*	m 07 97 00 1
abundant oa	lcareous noc-	1.4°	\ · `	total depth	105 13.00 E
Clay-abale	hout, moist. is gravelly		ox 1	5. Jars:	4.5
throughout	rous modules) this interval.	<u> </u>	٠ إ	1. 2.0° to 3. 4.5° to	7.0
Calcareous 9.9'.	from 9.5' to	G 0.61		4. Cartona:	'E
	,	0.0		1. 7.5' to	15.0
1 1 <del>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </del>	to grinding.	-	<del>                                     </del>	1	. 1-
1 • 1 7 1		1	) ,	5. Core Box	15.0'
7	INDIVINE - shall	ļ	1	, ,	
I I ∼I I tatan ta	grayish tan, , finely sand		1		Ė
and is int		4	1	١.	, E
	rained sand- ne following		1		E
intervals;	11.8' to 12.0 3.5'. Iron- 4 from 13.3' to	٧;		**	. F
stone mte	d from 15.3' to ale and sand-	١	٠ ,	1	E
stone is n	op-calcareous.	1 .	1	·	F
] ] ] ,	15.01	-}	1	•	, · · E
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ENG FORM 1836 PARYIOUS EDITIONS ARE ON	W. 171.	PROJE	-		HOLE NO.
MAR 71 18-38 PARYIOUS EDITIONS ARE OUT		Au	brey L	eke	8160-309

DRILL FAOACT LECATAS LECATAS L HOLE NO E 010 (CT101 THERBEE ELEVATION

Vition				Kylo No.	81.60-309	
Southwestorn	IN STACE	71	rt Wo	4b. 🐧	or 1 meet	7
brey Lake	W MIR	UN FOR E	EVATION	raden Alleria	* Core	7
illway Site "F"	12, 444	AVYSA TO	A FEE	GHATION OF BAILE		┨
rps of Engineers	18. 707	Pailing Stream	1500	D1199418		┨
8160-309		AL NUWSE				4
Schoonover	IL ELE	VATION 6	-	TER		┪
DEG. FROM VERT.	M. DAT		110	Dec. 1975 10	Dec. 1975	٦
4.51	19. ELE	VATION TO	эр ор но	Y FOR BOSING		7
10.5*	79. 346 H	ATURE OF	INSPECT	Churce	# <del>D</del> -	4
CLASSIFICATION OF MATERIA		A COME	POR OR	(Delling time, out		1
0.01 to . 4.51		- <u>·</u> -	No.	••		+
CLAY - medium plantic	lty,		Seapl	to Bole was	bailed to	Ė
brown, hard, milty finely sandy, slight	11-	1		near total completion plastic pi for water	and slotts	ď
moist, becoming more moist from 2.0' to	1.51.		۸,	for water	pe installe level obser	\$
alightly calcareous,	•			vation.	*	É
4.51 to 9.91		,	25	. ` `		E
CLAY-SHALE - appears to	to be	Actual		, ,		E
brown, marbled gray,	2008	1.41	. 1	2. Drilling to 7.0°; 6	t 6 augur core to	-
abundant calcareous ules throughout, moi	nod-	L 0.61	. ]	roter debri	t of ,15.0°	ŀ
Clay-shale is gravel (mostly ferrous mode	ly	, ,	0x 1	5. Jars: A. 2.0' to		Ē
throughout this into	iral.		-	B. 4.5' to	7.0	Ē
Calcareous from 9.31 9.91.		C 0.61		4. Cartons:		Ė
9.9' to 11.3'	٠ 'ا	,	1	1. 7.5° to 2. 14.0° to	3 8.5°	Ė
Core lost due to grind	ung.					Ė
11.31 to - 15.01			ľ	5. Core Box	15.01	Ė
SHALE AND SANDSTONE -	shale				•	Ė
is ten, to grayish t soft, silty, finely and is interrupted b	an,	٠,٠			*	E
and is interrupted by	y ten		1	_		Ė
"stone at the followi	ne l				ŕ	E
intervals; 11.8° to 12.5° to 15.3°. Iro stone moted from 15.	12.0	*		* *		
stone noted from 13. 13.4'. Shale and sa	3' to	•	٠, ا		•	E
stone is mo-calcare	ous.	٠.		•		E
T. D. 15.0'					<b>`</b>	E
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. Little Sanda and Color	***			****	200	E
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S EDITIONS ARE GOSOLETE.		790JECT		<del></del>	HOLE NO.	上

								Hele No.	8A - 310	_
	LING L	∞ <b>₩</b>	Southe	estern	MATAL	Fort	Worth		or 1 meet	
PROJECT	Aubrey	Dem			W M16			BURGE MEL	17	7
T. COCATION	die Tei	Works	ar 100)		1				<u> </u>	↲
1 0411111	AGENCY	DSCE				. 7	ailing	1500		
A HOLE HO	(40,000	- m +	end Helo;	84-310	12. 201	\$ - \$ . S.	211744	14 5	0	7
L HAME OF	DAILLEA				14 707	AL 90986	. cost	101ES		7
4. 01986110	m er mo	re mil	lins		14. DAT	VA110+ 6	1014		=::::	-{
Ø	٠ 🗆	146 F >= 64				VATION TO	1 1	9 Sep 80 :	19 Sep 83	-
7 THERNET	8 07 OV	-10 000	* 10.		10 707	AL CORE	P3 VC 230	Y FOR SQRING		7
4. TOTAL O			11		ويند "	2700	OL.	iz gic		7
ELEVATION	06978	LEGENO	CLAM	IPICATION OF MATERIA	.1	accov.	101,07	(Drating ton) out		٦
	-	<u>                                     </u>				<u>                                     </u>		and and	N OWNER AND	- -
	=		0.0'	to 1.0'			Λ	***		E
	=	]		low pleaticity,	h	ĺ		1. Hole was	dry after	E
	=	1	אנץ.	silty, dark gra	y.	[	B	check, bol	a. 16 hour le was dry.	E
i I	=		1.0'	to 4,01		ĺ	<b></b>			F
	=						c	2. Jars:		E
	Ξ	1	hard,	medium plastici , dry, gray.	ty,	l	<b></b>	A. 0.0 to 1 B. 1.0 to	.0	Ē
	_=	1	4.0'	to' <u>6.0'</u>			9	C. 4.0 to (	5.0	E
	Ξ	1					ا "	E. 9.0 to 1	10.3	E
	10 _=		SILE	medium plastici y, stiff, gravel	ty, ly,		٤	7. 10.3 to	11.0	E
	-		\$00.6	caliche, tan an	ď		F			F
	=	]	white				<u> </u>	3. Hole of	feet 10'	E
	Ξ		6.0'	to <u>10.3'</u>				Zast.		E
1	=		CLAY,	low plasticity,						E
	Ξ	}	to 9	m stiff, sandy,	nois:	,				E
	-		tea.		- 1200	'				E
	=		10.31	to 11.0'						E
	_			weathered to 1	0.51					F
	20		unvei	, weathered to ] thered from 10,	5' to					E
			m.	stiff, dark gra	y.					F
	-									E
	Ξ	1		T.D 11.0* -						E
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EHG FORM	1874			ARE OBSOLETE						E
		PREVIOU	S EDITIONS	ARE OBSOLETE		PROJECT Aubr	ey Dem		- £ 310	, –

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374	00 40	ACTION	DATE	0 € 3 C #1 # T + O #	OF REVISION	
			Y ENGIN	VEER DISTRICT, FORT		
ļ			COF	APS OF ENGINEERS		
				FORT WORTH, TEXAS		
****	PC9 67:		F	RAY ROBERTS LAK	E	
		l	ELM	FORK TRINITY RIVER T	FXAS	- 1
9410	4 671	1		IKMENT, SPILLWAY		- 1
		1	- MUAI	-	AND	
	CVES 974	4		OUTLET WORKS		
```			1	LOGS OF BORING	S	- 1
		8A6C	-307,8/	A6C-308,8A6C-309	AND 8A-	310
SUEW	IITTED B			INVITATION NO DACW 63-82-8-0		
			1	CONTRACT NO. DACW 63-82C-C	083	SEQUENCE
ENGI	HEER		1	DRAWING HUNGER	SHEET HO.	3/1
			•		1 6#	,,

DRILLING LOG Southwestern Fort Worth Aubrey Dam
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Loca IL DESCRIPTOR SEEVEN SHE BURGES WHE Falling 1500 S TOTAL NO OF OVER. 84-311 IS TOTAL NUMBER CORE BOXES MANE OF DRILLER Hillina -------17 ELEVATION TOP OF HOLE 573.6 (offset elev.) THICKNESS OF OVERBUADER 10 TOTAL COME RECOVERY FOR SOMING DEPTH DRILLED INTO HOCK TOTAL DEPTH OF HOLE 15.0 RECOV. LAWY E REWARE (Drelling time, water has death of mondaring, along it aspecticans) ELEVATION DEPTH LEGENS CLASSIFICATION OF WATERIALS A 0.0' to 1.0' \*\*\*\* ահակադահակակա 1. Role was dry after completion. 16 hour check, level was 15.4 SILT, medium stiff, dry, low plasticity, dark brown. В 1.0' to 6.7' 2. Jars:
A. 0.0 to 1.0
B. 1.0 to 6.7
C. 6.7 to 12.0
D. 12.0 to 13.8
E. 13.8 to 16.0 CTAY, low plastcity, mediumatiff, silty, sandy, slightly moist, red and tau. 6.7' to 12.0' Ľ 3. Hole offset 30 ft.
on a bearing of N 90°
E. CLAY, low plasticity, medium stiff, sandy, soist, tan and gray. D 12.0' to 13.8' SAND, gravelly, medium dense, clayer, tan and brown. £ 13.8' to . 16.0' SRALE, reworked in upper 0.37, unweathered darl gray... T.D. - 16.0' -ENG FORM 1836 PREVIOUS EDITIONS ARE DOSOLETE. HOLE NO. Austry Des

BA-311

			visión Southvestern	METALL	ATION		-
. PASIECT			onthrestern	701	t Wort	07 817	
A	ubrey	Deca		11 641	HIST CO	PATION	1204 A 778
. COCATION	ינופנ"	Rotks"	·····	13 =2.50	FETTER	A 8 0 8 14 C	300
. ORILLING				13 707	Tai	CYCALE L	- G-1744
#01 E #0			8A - 312	BURG			
HAME OF		HI.	lline	18 866	ATION SA	CORE D	169
. DIRECTIO			986, 5964 7887	14 OAT	1 40LE	"î	3'Sep 80
THICKHES				17 ELE:	ATION TO	ook h	010 56
01P1# D#				18 TOT	L CORE S	ICOVER!	OR / C
TOTAL DE			15 5			Cole	42
LEVATION	0497#	LEGENO	CLASSIFICATION OF WATERIA (Datermine)	u .	SECOV.	POX OF	(Delling to
					<u></u>		
	=		0.0' to 2.0'	i		Δ	1. Aug
	Į		SAND, fine grained, a	edium			rated 24 hou
	=		dense, dry, brown.		l	B	24 no.
	=		2.0' to 12.0'		1	<b> </b>	
	]		GRAVEL, coarse to fir		l	0	2. Jar
	=		grained, medium dens		1		A. 0. B. 2.
			from 5' to 7', become aturated at 7'.	146	ĺ		C. 5.
			saturated at I',		ł	_	D. 7. E. 12 F. 15
	,o =		12.0° to 15.0°			0	F. 15
	111		CIAY, medium plastici	ty,	l		
	-		very stiff, moist, ; brown.	ravel	у,	<u> </u>	3. Hol
					l	٤	M80.
	-		15.0' to 15.5'			٦	ina: Ele:
			SHALE, unvesthered,	oft,	1	E	tair
	-		dark gray.		l	Г	
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ine e	<u> </u>		US CONTIONS ARE DISOLETE		<u>l</u>	brey L	]

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3+661 1 0+1 sheets outhwestern 0 Fort Worth IL DATOR SOLECEASTION ENGRY (LEN - NET) Tailing 1500 IS. TOTAL BO STOVEN. BUTUNESS OF THE STOPPES 8A 312 IS ELEVATION SHOULD AVEN HE line 14 DATE HOLE "19 Sep 80 19 Sep 80 13.0 18 TOTAL CHE BECOVER FOR DORING
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(Digling lawn, owner loos, depth of maple stee, ote, if eigenfeared CLASSIFICATION OF MATERIALS 0.0' to 2.0' Δ 1. Augered into satu-rated gravel at 7'. 24 hour check - level SAID, fine grained, medium dense, dry, brown. В VAS S424. 2.0' to 12.0' CRAVEL, coarse to fine grained, medium dense, moist from 2' to 3', damp from 5' to 2', becomes saturated at 7'. 2. Jars: A. 0.0 to 2.0 B. 2.0 to 5.0 C. 5.0 to 7.0 D. 7.0 to 12.0 E. 1. 9 to 15.0 7. 15.2 to 15.5 12.0' to 15.0' 0 CLAY, medium plasticity, very stiff, moist, gravelly, brown. 3. Role offset 80.ft. on a bearing of N80°E due to inaccessible terrai ٤ 15.0° to 15.5° Elevation was ob-tained with level. SRALE, unveathered, soft, dark gray. T.D. - 15.5' hibrey Lake 22.519 STIGHT ARE GROLETE.

Hele No. 6A-312

							Hele He	676-313	_
DRILL	ING LO	c Cov	SVD	METALL		JwD	0	or 3 sucers	
PROJECT	mp141	Den		15, DATO	STON EL	0/ 817 VATION	Hotel Hay Co	den., 6" can	٦
L LOCATION On	tlet.	nos de las		7			HATION OF BAILS		1
T ONITE(NO	DS	CE-C	<del></del>	1		Tail	ne 1500	14003100000	┨
	(A o about		6DC-313		ing of	E TÂRE	14	6	┨
NAME OF			<del></del>	18. ELEY	ATION ER	CORE BO	ER #44		1
L DIRECTION			Mullina	14. DATE		107 44	Aug	10 Sap 80	J
THICKNES		_			ATION TO				-
. DEPT# 04			29.5 53.6	10 707/	L CORE A	COVERY	FOR BORING	99	H
TOTAL DE	PTH 0#	HOLE	83.1	Щ,	McVev	to 39	II. Cole to.	T.D	┨
ELEVATION	DEPTH	LEGENO	CLAMIFICATION OF WATER! (Decomposited)	ALB	ecov.		(Drilling 12ms, m	ARES organization of the speciments	1
	-		0.0° to 16.0°				644	+ ,	E
	=		CLAT			٠. ا	1. Bailed	hole to near	E
	Ξ		0.0' to 4.0', 1 plasticity, hard,	ov		A	vater 0	hr. check, 25.5'.	E
	<u> </u>	1	plasticity, hard,	dry,			•	•	ŀ
	=		brown, silty. 4.0' to 6.3', a	ud.		В	2. Jaret	from den. c	
	] =	ll	plast, V. stiff,	dry,		-C	A. 0.0	to 4.0	E
			strong brown, sl.	sandy.		10	B. 4.0 C. 5.0	to 5.0 to 5.5	F
			6.3' to 16.0', low plast, atiff,	med./		.20	D. 7.0		E
	10		yellowish brown, si line nodules and sa	lity,			F: 11.0		ŀ
İ		1 1	below 15.01.	ina.		3,	G. 11.0	to 13.0	٦
			16.0° to 21.3°			_#	I. 17.0		
			SMD, fine grained,	clayer		G	K. 20.0		Ī
	=		a silty same with	ong .			L. 20.0 M. 21.3	to 21.3 to 26.3	1
	11111111	1	brown, & yellow bro light grey.	WE W/	1	44	W. 26.3	to 29.5	ı
	=		21.3' to 29.5'			5	0. 29.5	to 32.9	ŧ
	3	}	CRAVEL, coarse to f	ine &		3 =	3. Denis	on cans:	
	<u> </u>		round, damp to mois (drill fluid still	it?	,	J	1. 5.5	to 7.0	-
	[ ]	{	atrong bm. clayey	sandy	<b>]</b> ''	6	2. 7.0	to 9.0	-
	20	1	29,5° to 82.9°			<u></u>	3. 9.0 4. 15.0 5. 15.0	to 11.0 to 15.0	
	) 3	1		dk. er	١,	4	5. 15.0	to 17.0	1
	=	1	SOIT to mod. soft(	Rx. cla	(tie		6. 18.0	to 20.0	1
	3	}	massive, silty V/ is of thin silty & san	αY	1		4. Cart		-
	=	3	seams @ 10-12 deg	INGS.		M	/-35.3 to		ı
		1.	Several med, hard : seams as indicate	SANDSTO d below	de .	1	12-41.9 to	42.9	
	٦ -	1	45.6- 45.9		1	├	3-45.6 to	51.3	i
		1 `	1 49.6 50.9			1.	5-57.3 t	59.3	
		1	57.0 57.3		1	\ <i>\</i>		70.6	
	130		61.2 61.4 64.1 64.4		} <sup>-</sup>	<del>                                     </del>	8.75.3 to 8-81.9 to	o 76.3 o 62.9	
	! ' -		64.9 65.0		1	0	,,	,	
	1 3	=	66.7 66.8		ŀ	Ľ			
	7	<u> </u>	Highly fossilif, z from 69,9 to 70,4(	cts, #7	1.	X	5. Drilli:	-	
}	1 3	$\equiv$	}		<b>—</b>	Box	1 8	Auger.	
'		<u>ت</u>	Structural feature follows:	18 8.9	l		3	et 5.0', casir	ag.
	.  _		- 45.4 open free	:t	14.02	$II_{l}$	5.0° 6	denison	
] ' '	1	$\equiv$	47.1 51.3	•	1	1	1 6	. megraf en	
ł	1 -		64.2	•		,		rili progres:	s ed
	1	Ë	<u> </u>		6.02	2	21.51	10 32,0°	
	, ,	1"	US EDITIONS ARE DESCLETE.			<del></del>	.1 .	F. A. C. HO.	

	Holo No. 67-313		Hole Na. GDC-3/3	
FOC CALIFION ZAD	Initiation PAD G of setty	DRILLING LOG ( DIVISION	or Sincers	
wy Dana	W. MIE AND TYPE OF SIT AS BUT AS ASSAULT OF CATE	L'LOCATION (Companies de Limited) DAM	A SITE VAD ANDE OL OIL	
Indice of liables	II MANUFACTURER & OCCIONATION OF DAILS.	1 ONILLING ASSEST	12 MANUFACTURER S DESIGNATION OF CAILL	
USCE-C	7411nc 1500	6 most no les man an accomp "IT" GDC-313	19 TOTAL NO OF OVER   CHITCHER   UMDISTURGED	
6DC-313	14 TOTAL HUMBER COME BORES 10	L NAME OF ORILLER	16 TOTAL NUMBER CORE BORES 15 ELEVATION GROUND WATER	
e A Bullina	Istantio (complete)	A. DIRECTION OF HOLE	M DATE HOLE   STARTED   COMPLETED	
016, 500m VER1	IF ELEVATION TOP OF HOLE	7 THICANESS OF OVERSUNDEN	17 ELEVATION TOP OF HOLE 18 TOTAL CORE RECOVERT FOR BORING 9	
DINTO ROCK 53.6	NO TOTAL CORE RECOVERY FOR BORING 99	4 DEPTH CHILLED INTO ROCK  9 TOTAL DEPTH OF HOLE	16 TOTAL CORE RECOVERY FOR BORNING	
PROCE BEST	Waven to 391. Cole to T.D.	ELEVATION DEPTH LEGEND CLASSIFICATION OF WATE	ERIALS SCORE BOS OR REMARKS RECOV. SEMPLE (Distingtion) and or loss, depth of anothering, orders anothering.	
TH LEGEND CLASSIFICATION OF MATER	TIALS A CORE BOT OR REGIANTS  RECOV. SAUPLE (Prilling lime, under land, during land, and a land land)  Or of the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and the control land, and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and a prince and			
O.0' to 16.0'  CLAY  O.0' to 4.0', plasticity, hard, brown, silty.  4.0' to 6.3', plast, Y. stiff, strong brown, sl. 6.3' to 16.0', Tow plast, stiff, yellowish brown, sline nodules and sbelow 15.0'.  16.0' to 21.3'  SMD, fine grained, A silty seams with gravelly, day, sare brown, a yellow br light gray.  21.3' to 29.5'  CRATEL, coarse to fivened, dap to moi (drill fluid still strong bro. cl.9'  CLATELIE, mayeath, soft to mod. soft massive, silty W i of thin silty will seams 0 10-12 de; Several sed, hard seams as indicate 45.6-45.9 49.6 50.9 50.4 52.1 57.0 57.5 61.2 61.4 64.9 65.0 66.7 66.8  Highly fossiller, from 69.9 to 70.46  Structural featur follows: 47.4 open fra 47.1 security. 64.2 security.	dif,  med.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  and.  dif,  dif,  and.  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,  dif,	T. D. S.  HOLE TAPE 72.	E:12 2   Drilling cont.   Set 31.5' casing, clearout to 35.5'   33.5' to 83.1'   6" core   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0.2   C-0	
	RECORD DRAWING-WORK AS BU	occiones etc.	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXA  EMBANKMENT, SPILLWAY A  OUTLET WORKS	AS

TO ACCOMPANY FOUNDATION HEPORT

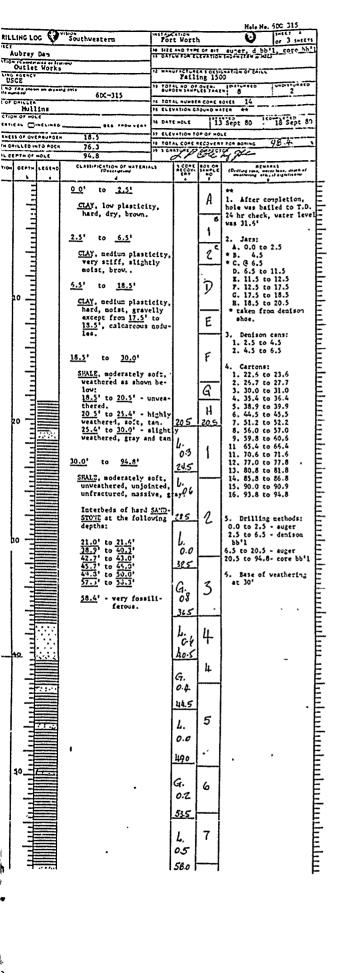
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CLASSIFICATION OF WATERIALS \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 0.0' to 2.5' 1. After completion, hole was bailed to T.D. 24 hour check, level Д CTAY, low plasticity, hard, ailty, dark brown. vas 39,3 1 2.5' to 3.5' 2. Jars: A. 0.0 to 2.5 B. @ 4.5 C. @ 6.5 D. @ 8.5 E. @ 10.3 7. @ 12.5 G. @ 13.5 CLAY, medium plasticity, hard, moist, brown 1 .3 3.5' to 13.5' CLAY (CALICIE), medium to 4. low plasticity, hard, slightly moist, silty, calcareous nodules, brown 3. Denison cans: 1. 2.5 to 4.5 2. 4.5 to 6.5 3. 6.5 to 8.5 4. 8.5 to 10.5 5. 10.5 to 12.5 6. 12.5 to 13,5 5 13.5' to 15.0' \* 6 GRAVEL, well-graded, medium dense, clayey, brown. 15.0' to . 18.5' \* 4. Cartons were not CLAY (CALICRE), low plasti-city, hard, moist, calca-reous nodules, light brown. requested. . Drilling methods: 0.0 to 2.5 - auger 2.5 to 13.5 - denisor bb1. 13.5 to 20.5 - auger 20.5 to 89.0 - core 20.5 20.5 18.5' to 24.5' 1 00 STALT, highly veathered to 22.0', partly veathered from 22.0' to 24.5', soft, numerous fractures to 22.0', tan and gray. 6. Depth of venthering at 24.5 L \* Substitute the followa; classification of materials for this interior materials for this interior materials for this interior materials for the staines yellow-brown & white massive, hard, fors, irreg thin soft shale seass, limonite concretions. (See borin; \$ASC-751 which was drilled at the same location). \* Substitute the following 24.5' to 89.0' 00 290 SIMES, unweathered, modera-tely hard, massive, gray, with interbeds of moderate hard SAMMSTONE as shown below: L. 100 3 Selov: 330 00 4 365 Ŀ 03 ENG FORM 18 36 PREVIOUS EDITIONS ARE OBSOLETE 60C 314 Aubrey Dan

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			CLAY, low plastici hard, dry, brown,				hole was ba 24 hr check	iled to T.D. , water leve	Æ
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			2.5' to 6.5'				2. Jars:	. 1 4	E
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i			very stiff, sligh moist, brown.				* C. @ 6.5	11.5	E
			<u>6.5</u> ' to <u>18.5</u> '			ア	H. 11.5 t	o 12.5	E
	20 -			4.2.	1	"	G. 17.5 t	σ 18.5	E
	<b> </b>		CLAY, medium plast hard, moist, grav	elly	1			om demison	E
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	=		18.5' to 30.0'			١,	4. Cartons		E
	=	1	SPALE, moderately weathered as show		1		1. 22.5 6	to 23.6 to 27.7	E
	<u> </u>	j	lou: 18.5' to 20.5' -		1	G	3. 30.0 0	131.0	Ε
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	20 =		20.5' to 25.4' - weathered, soft,	highly tan.	20.5	20.5	6. 44.5 t 7. 51.2 t	tr, 52.2	-
	=		25.4' to 30.0' - weathered, gray a	alight	ļу		8. 56.0 G 9. 59.8 G	La 57.0	E
	-			ino tan	14.	1	11, 65.4	to 65.4	E
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121'- 13.1'
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418'- 410' 1801 5 469'-480': SHALEY 465'-501' SHALEY 508'-510' Box 523'-545' SHALEY <u> 585-590</u>, كمليتمد 801 7 AST - AND - CATA HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 HAS OF 12 Box B 663'-669': SHALE 25 Book; SANDSTONE IS GREEN GRAY WITH NUMEDOUS OFSTEZ SHELLS (< 1/2" in Side) 669'/6999': SHALE:

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PASTICITY; HARD; DRY,

SILTY

SOFF; DAMP; BRN

19'-60': MED/HIGH

PASTICITY; HARD; DRY,

YELD SENE BRN;

YELD SENE BRN;

LIHET; SLITY & SANDY

80'-141" HED/LDW

PASTICITY; YER, STIFF;

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SILTY & SANDY

SILTY & SANDY <u>մակադիակակակական</u> MATER LEVEL:
21 HES AFTER
BAILING WATER LEVEL:
WAS @ 274'

2 JAR SAMPLES
A: 00'- 3.0'
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E: 14.1'- 170'

DEILLING:
MACREED O.0'- 17.5;
AUGER REFUSAL
@ 175'- 325' LEFT
10' OF CORE IN
EDEING (515'- 525')
ENLATE PUNIS
BALEED BORING. A WATER LEVEL 3 2. JAR SAMPLES c D DAMP as above; STIFF, ٤ 17.0° ro 187 LIMESTONE HARD;
HISSING, WE STHERESTANED, WILLIES
YELLYJ. BRY, FOSSILIF.
EROOS; O.I'THICK
UHCHTE SEAM & BASE Box 4. BUSE OF WEATHERN'S @ 28 97 187'40 31.5' SHALE 18.T'-289' WEATHERED; YELLOW BENE OBAY; SOFT TO HOD. SOFT, HASSIVE, SCAT THIN SILT & SAND SEMYS, SULTO HON-CALC. 301 - 1 541.76 NON-CALC"

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T LOCATION	28 • ≪	×** ** *** >								
) DAILLING		US	)E-C	FAILING 15						
E HOLE HO	(A s oher m	-	BALC - 340	Bunglestantes tonen A						
& House of			LLINS	IL ELEVATION SHOUND BATER WINE R						
6. 018ECTIO			000 7000 1007	IS BATE HOLE   14 FEB 81						
7 THICKNES				17 ELEVATION TOP OF HOLE						
			14 7'	18 HERATURE OF INTRECTOR MCACA						
9 TOTAL 0			300							
ELEVATION		LECENO	CLASSIFICATION OF WATERS (Pessentian)		I COME ALCOV- EAY	100	(Disting took or september of			
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i	=	]	CITY, STIFF, DAM	P, Dk.	1 1		WATER!			
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}	] =	1	HIGH/HED  CITY, STIFF, DAN  HOST, RED YEU  SILTY & SANDY,  NODULES  74'-12.7' 33 16-4	PTO		8	2. <u>JAR 50</u>			
1	1 =	1	SILTY & SANDY,	MHE		ĺ	A: 0.0'- 2'			
}	=	4	1 74'-12.7's as above		1	<del> </del>	1 78:24 - 7			
Į	-	}	7-12.7" as above HED/LOW PLAST HED STIFF, SA	n'cny;		Ì	C: 74'-1 D:12.7'-			
1	<u>-</u> ا	ĺ	HED STIFF, SA	NDIER		c				
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}	=	4	12.7'-15.3' NED/HIG	Journ	.}	1	AUDERED			
1		3	CITY; HARD; DRY	יי מיניטאו	1	<del> </del>	BAILED E			
1	-	3	CITY, HARD; DRY YELLOW BRNISH	WDYZ	1	D				
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-	1			ins!		Box	27' NORTH			
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ENG POR	M 1836	-	OUS EDITIONS ARE DOSOLETE		I '	~	ibret Day			

ENG FORM 1836 PREVIOUS EDITIONS ARE DESOLETE

Holo Ho. BALC - 360 17:50 ASTALLATION 'ING FOC SWD FWD NO MIR AND TIPE OF BUT AUGER, L" CORE DAM - CUTLET WOEKS 18 MANUFACTIVATA TO THOUGHT ON ON CANCEL
FAILING ISOO
13 TOTAL NO OF OFFICE PROPERTY A USCE-C According BAGC-340 TO TOTAL HUMIER CORE BOSES

THE ELEVATION SHOWND WATER #JCE REMARKS SAILER ME DATE HOLE STATES 1 19 FEB 81 - 07 HOLE . .... ... 153' LOF OVERBURDEN 18 TOTAL CONERECOVERY FOR BORING ---REMARKS
[Draing rang, uples been, depth of gentlering, etc., 15 eigniteens CLASSIFICATION OF WATERIALS ..... .... 00% 15.3 WATER LEVEL: WATER LESEL:

18 HES. AFTER BAUNG
WATER LEVOL WAS

2 23.1'.

2 JAR SAMPLES

ALDO'- 24'

B: 24'-74'

C. 74'-12.7'

D. 12.7'-15.3'

DEILLING: CLAY OO- 24' HED/HIGH PLASTI CITY, STIFF, DAMP; DX. BRN; SANDY & SILTY BRN; SANDY & SILTY

24'.74' HIGH/HED PUSTICITY; STIFF; DAMP TO
HOST; RED YELLOW;
SILTY & SANDY; LIME
HODILES
74'-12.7'' 20 260'C,
HED/LOW PUSTICITY;
HED. STIFF; SANDER 16 C DRILLING:
NAERED O D'-15.0'.
NAERED O D'-15.0'.
PAILED BORING.

E-LOGGING

C. OG HOLF DRILLET

27' NOETH OF
BALC-340. 17.7'-15.3' HED/HIGH PLAST CITY, HADD; DRY,
YELLOW BRN, SANDY;
SILTY, LIMEY
15.3 % 17 3' D LINESTONE WHITE &
YOLLOW BON STAINS,
ARD; MASSIVE;
FOOSILI FEROUS Bot 5. BASE OF WEATHERING.

@ 29.2'. 17.31/20 29.7' JALE WEXHERED TO YELOW BEN & LT. GRAY TO 29.21, FIRM UNIVER-THEED DE GRAY; MASSINE; HOD. SOFT, SILTY & SANDY SCAT. THIN SWID SCAT. THIN SWID SCAT. SILTY OF SANDY SCAT. THIN SWID SCATES; FEW LIMONITE CONCRETIONS

24.31.27.77 MOD. 1801 2 Bol 213'267': MOD.
CEMENTED
SANDSTONE
218'-281': MOD.
CEMENTED
SANDSTONE 21/11/20 10: 29.7' PROJECT AUBRET DAM 136 PREVIOUS ESTITIONS ARE DESOLETE

									Hele	K+ 8	A6C-36	<u></u>	
DRILL	NG LOC	7	404	5WD		INSTALLA	tión	FWD		,	304ET   07   30E		
AUDREY DAM - OUTLET WORKS					HE STOR AND AND ON BIL B. WINCE P. CVEDOOA								
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PRILLIPS	46E4C4	USC	E-C			FAILING 1900							
HOLE HO		-	@ 15ct 0 1	BAGC	161	AUNDEN SANGLES TAKEN 3							
HAME OF C	MILLER	MU	LLINS	DATE		IS ELEVATION GROUND TATER & SEE REMARKS							
DIRECTION				_ 0(4 /A		M DATE HOLE 29 JANSI SO JANSI							
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LLINS	18. 25.21	ATION GR	OUND WA	TER SEE RE	CMARKS	
BEG FARM VEGE,	16 0411	1 10.5	1";	SANGI	SOUND	
150'	17. ELE	ATION TO	P 07 HO			99 1
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CLASSIFICATION OF MATERIA  [Postingling]		S COAT RECOV- EAT	HO.	(Diding im), mailting,	MARES motor less, dept of the of organization 9	-
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PLASTICITY; STIFF	1517	1	Ì '	AUGER 24 HRS	A STYR	· E
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£ SILTY: LIMEY:	CALC		一一	2.JAR SAI A.O.O.		E
81'-130' MED-10W	,		1	\$150	-8.1'	E
SU MOIST; YELL	0W-	i	0	C.81'-	130'	E
PLASTICITY; VERY SU-MOIST; YELL BEN, SANDY & S SU-GRAVELLY	PAS		ŀ	i		F
130% 192"			<u> </u>	3. DRILL	ING	
LIMESTONE ARGIL	<b>и</b> -	ļ		8'AUG	ER 00-13	0' E
CEOUS, WEATHER	N-65N	જ	Box	13 5	REFUSAL SET CASIN	14
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HARD; OYSTER : IRREGULAR TH SOFT SHALE S	IN	0 2' coeucs (35.0'- 24	1	HOLE	24,0,0	
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	۵7' =	-	2 2 . 4.7 HED- LO	w		_		
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	10-		SANDY & SILTY				B 13'	
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	ـ ا		CEOUS, WEATHE			2	B-YOGE	er 6'ccee
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ENG FOR	1836	PREVE	DUS ECUTIONS ARE DESCLETE		****	' AUB	ZEY TXM	84C-3

## RECORD DRAWING-WORK AS BUILT

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3₹₩	OC NO	ACTION	OATE	DESCRIPTIO	OF REVISION	
		U.S. ARM	COF	NEER DISTRICT, FORT RPS OF ENGINEERS FORT WORTH, TEXAS	WORTH	
16119	m() 07		F	RAY ROBERTS LA	KE	
			ELM	FORK, TRINITY RIVER,	TEXAS	
7.	* 67		EMBAN	IKMENT, SPILLWA	UNA Y	
				OUTLET WORKS	;	
1000	(+19 97)		1	LOGS OF BORING	GS	
		8A6C-3	59,8A6	6C-360,8A6C-361	AND BAGC	362
SU. 8 W	111160 EV		, ,	INVITATION NO. DACWES-82-8-	0025 WIE MA	K,1982
E407	.a.			CONTRACT NO DACWES-82. C. DRAWING NUMBER	SHEET HO	ungsa 38

Mele No. BA-343 MATALL ATION DRILLING LOC 5W0 FWD AUBREY DAN . OUTLET WORKS HE SILE MO TIPE OF BIT B'ALTER STA A9100 II. MANUFACTURER TO CHICHATION OF CRICL
FALING 1500

1) TOTAL NO. OF OVERBURGER THANKES THANKES

THE TOTAL NUMBER COME SOLES. N/A USCE-C OLE NO (As seem on graming this BA - 343 ----IS. ELEVATION GROUND WATER & SEE REMARKS A JUNE A JANEI . DIRECTION OF MOLE -..... IT ELEVATION TOP OF HOLE 246 THICRNESS OF OVERBURDEN
DEPTH DRILLED WITH ROCK TO TOTAL COME RECOVERY FOR BOATHS 14' . TOTAL DEPTH OF HOLE 26 0' S COME SON ON (Delling then, motor hoos, depth of manuscring, other of argentecome CLASSIFICATION OF WATERIALS ELEVATION DEPTH LIGENS 00% 24.6 I. WATER LEVEL: CLAY. C.ATI

OO: 43' LOW PLASTICITY

@ SUPERACE, GRADNIG
10 HIGH PLASTICITY

BY 1.0'; SOFFTD

HED. STIFF, HOIST,

DK BEN; SILTY

43'-16.0'; HIGH- HED.

PLASTICITY; STIFF

BECOMING SOFT BY

HO; MOIST, YELDAL

BEN 6 LT. GRAY;

SANDY E SILTY; SOME

LIME GRAVELS Boring Making Water @ 13 o'. BORING MAKING
WATER & 13 o'.
WATER LEVEL
INACOLATELY
AFTER DOILLING
WAS @ 7.o'.
24 HES AFTER
DOILLING WATER
LEVEL WAS @ 4.8'.
LEVEL WAS @ 4.8'.
LEVEL WAS @ 4.8'.
LEVEL WAS @ 4.8'. 6 FEB 81: WL 4.6' 2. No SAMPLES TAKEN. 3 DRILLING 16 0'-23 0' GRAYE STEOLG BEN; as above; TRIN YELLOW SAND SEAM AFTER ZOO: HOTE BORING OFFSET 17' NE. 23 0' - 246' DK . GOLY, 25 20010, STIFF 24 6 70 26 0' SHALE DK.GEAY; DEY; HOD SOFT, BLOCKY CLEAVAGE ույնուՄակահակականու TD: 26.0' PROJECT AUBERY DAM ENG FORM 1836 PREVIOUS COITIONS ARE OBSOLETE

							Hole Ho.
	ING LO	<u> </u>	SWD	PRETACE		FW	
AUBRE	DAM	<u>1-q</u>	MET WORKS	II BYAC	AND TYPE	VATTA	MOES!L.COE
STA.	2 . 50			IL HARV	FACTURES	10000	HATION OF DAILL
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e noce no			BALC-364	10 202		****	0001 mi
S HAME OF			)LLINS	IL ELE	ATION GE	AP GHUC	THE SEE QUE
DIRECTION				14. 047		1070	SFCB 91
7 THICKHES				17. 616	Ation to	97 40	
& DEPTH OR	-	TO ROCK	230'	10 5100	ATURE OF	HIPECT	POR BORING
O TOTAL DE	j		CLASSIFICATION OF MATERS		3 5005	10 X 04	HENER
ELEVATION	_ \_	LEGENO	(Postsprim)		AECOV. EAY	AOX OA	REMARK (Dreiting tome, emisor measthering, other of
	00' -		OO'16 80'.				* "00.0%
	_ =		CLAY:		1 1	٨	I. WATER LEVE
l '	=	ļ	STIFF, MOIST, BU	ינות, ינגי	1 1		24 HRS. AFTE WATER LEVE
	=	į	STIFF, MOIST, BU SILTY & SANDY	· 		В	8.51
	∃	1	21'-51' HIGH PLAST	BEN,			,
1	=	1	51-80" HIGH PLAST	•		c	2. JAR SAMI
1	ΙΞ	1	I HARDSU DAMP.			C	A: 0.0'-2. 3:21'-51'
1	=	}	YELLOW BENZ LIT	GRAY	1 1		6.5.1-80
1	] =		80'1612.0'	,,,,,,	1	_	D.BO'-12.
1	° =	1	GRAVEL: WELL-	RADED		P.	E. 12.01-16
· ·	l =	<b>-</b>	HED. DENSE; SU ROUNDED; SA CLAYEY; BRN	NOY:			3, DeILUNC
1	"20'		120'16.0'. BRN	,			AUGERED 4
	1 3		SHALE (SANDS	Tale		ε	SET CASIN
1	1 3		SLI-WEATHERED	<u>.cac</u>	[	~	CLEANED C CORED IL C BAILED E
}	=		DE GRAY: SOFT	176 176	1	<u> </u>	BNLED E
ì	! :		De GRY; SOFT, HI HOD SOFT, HI SOME SAND ?	SSIVE	il .	1	
}	1 -		70 HO'(REWO	<b>XEKED</b>	1	Bot	1. BLUE OF WEN
1	i		02 DETO A	XSER)	1	1	@160'.
1	<b>&gt;</b> -		SHALE: UNIVERSE	COEN		ì	`
1	1 3		DX GRAY; HOD HASSIVE; SILT SANDY; SLLLI IFEDUS WITH	XF1	3		1
1	1 3		HASSIVE; SILT	( \$ OSSIL		١,,,	į
1	:		IFEROUS WITH	PANI		80/	ļ
1	1 7		ABUNDANT H	OD.	<u>'</u> ]	1	1
1	1 3		HARD HOO'S	EAKS	1	-	-{ .
	:		3 164-174' 5W	DOTON	: 1	١	
1	1 -		181'-188' 5H	ייסוכטו	El	201	
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1	30 -	<del>          </del>	21712191: 544 2221325: 544	ולינואן! אסוכח	Ė		<b>.</b>
ì			23 8:24 0'. 5A	iostal	d	1	1
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<u></u>	40 .	<u> </u>	1		PROJEC	ــــــــــــــــــــــــــــــــــــ	<u>1</u>
EHG FOR	M 183	PAEV	OUS EDITIONS ARE DESCLETE.		1730/60	. You	KEY DAM

Hole Ho. 81(C-365 SHEET J OF 1 SHEETS NG LOG SWD FWD THE PART OUTLET WORKS 11. WANUFACTURER & DESIGNATION OF DAILE FAILURG 1500
13 TOTAL NO OF OVER. METUPAR BURDEN SAMPLES TAREN BAGC -365 ILLEA MULLINS . ....... IT ELEVATION TOP OF HOLE ---160 98 IS TOTAL CORE RECOVERY FOR BORING
TO SIGNATURE OF INSPECTOR
MCVEY 18.7° LED INTO ROCK TH OF HOLE REMERTS
(Diving two, poles lose, depth of security limits, and it disputes and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and general and S CORE BOR OR RECOV. SAMPLE EAV BO CLASSIFICATION OF MATERIALS -Turburlanhurlanhurlanhur harhanhurlanh 00'10 12.2" WATER LEVEL! CLAY. OC.24' LOW FLASTICITY,
NED STIFF, MOIST,
YELLOW BENT, YERY
SMOT, GENCELY
24'.3.5' MED/HIGH FLASTICITY, HED. STIFF, HOIST,
BEOWNIGH-GRAY
SUL GRAVELY 72 HES. AFTER BAILING WATER LEVEL WAS @ 14.0'. 8 Ĉ 2. JAR SAMPLES. A100'-2.4' 51. GONELLY

55. 93 (\*\* NEO) HIGH AASTCOTY, HARD! DRY; BRN
GRAY; SANDY & SILTY

831-12.2" HED / HIGH

PASTICITY; HARD; DRY,
YELLON BRN 2 LT.
GRAY; SANDY & SILTY

12.2" TO LE O'. B: 2.4'-3.5' 5:24-35' c: 55'-8.3' D: 83'-12 2' 6: 12.2'-13.1' f: 13.1'-16.0' G. 16.0'-20 0' ø É GRAVEL DRILLING: 12 Z'-13 1'. COARSE TO FINE, FROMO, DRY, STRONG BEN; SANDY & CLAYEY 13 1'-16.0' OS JONE, MOST, YELLOW BEN & LT: GREY NOTE: BORING OFFSET 50' WEST. AGER 00'-160! SET 19' OF CASING. CLEANED OUT TO 200! L'CORE 200'-350'. 4 160' 10 34.7' SHALE 4 SANDSTONE: INTERLATERED, UNIMEATHERED; OK ARAY TO
LIT GRAY; NOD SOFT
TO HOD HARD, HOD.
GENERITED; HASSIVE Boil 235'-246' SUNDSTONE 1804 2 10:34.7' 16 PREVIOUS EDITIONS ARE OBSOLETE MEERY DAY BALC. 365

								Holo No.	11.C-365	i
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& HOLE		(A,		BA6C-365		L #V#0[				i
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	į	Ι Ξ		SANOY, GRAVELL 24-35' HED/HIGH F	3 4413+ -			1		E
1	×	1 =	ł	CITY; HED STIFF,	HOIST,		c	2. JAR SAM	PLES	E
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		] =		CITY, HARD; DRY; GRAY, SANDY E	BRN			C: 35'-8.	3'	F
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1		Ϊ Ξ		PLASTICITY, HAR	o; Der,	1	ס	f: 13.1 ^ l	6.0'	E
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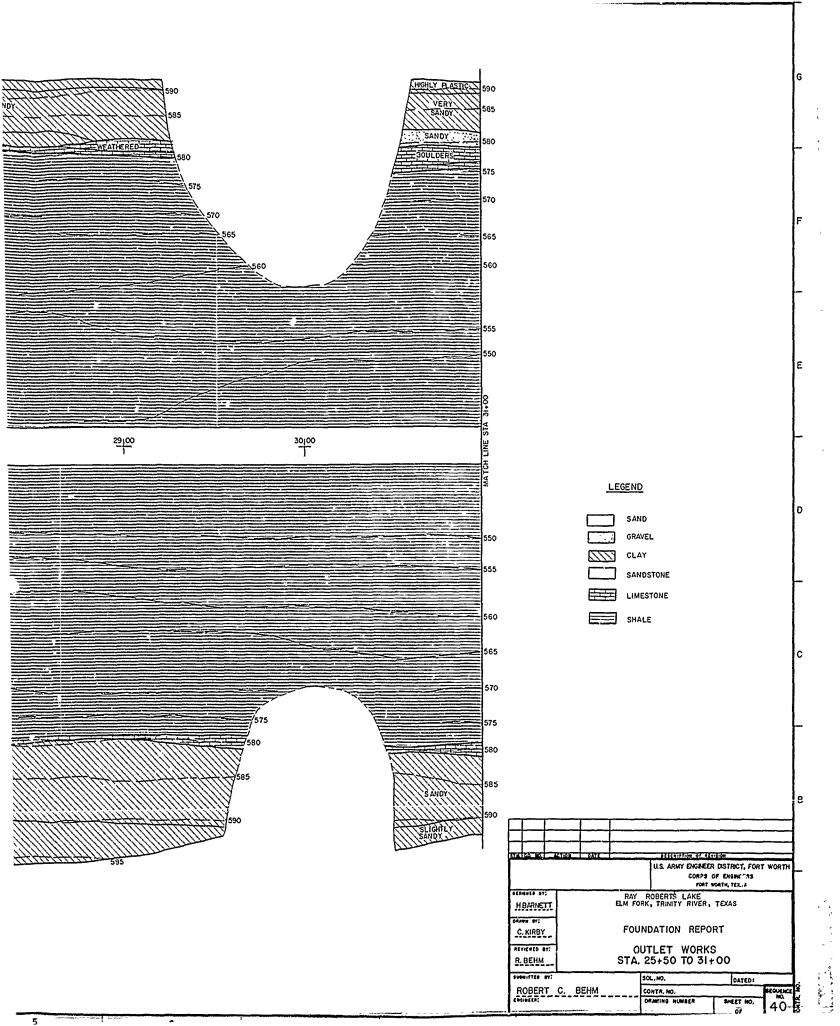
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SWD	INSTALL	ATION	FWI	<del>_</del>	04 1 SHEET	<u>,,  </u>
OUTLET WORKS	IL BATO	MEDTEL		AUGEU L'CO		-
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USCE-C			FAI	LING 1500	(vmmerune &	Ы
BALC -365		119.25		-		7
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oth 160'	14 707	L CORE O	.covea	F FOR BORING	98	괵
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HO CLASSIFICATION OF MATERIA	ALS	CORE RECOVI	SAMPLE	(DrdTing rate, to smarkering, of	ARKS HIS DOS AND OF L. SI SIGNIFICANT S	
00'10 12.2'1				*		Ė
CLAY			٨	I. WATER L		Ę
00-24'- LOW PLASTI	(אדני)		В	72 HES. A	TER BAILIN	4
HED STIFF, HOIST	ķΥ		<u> </u>	CHO.	EVEL WAS	F
MOY, GRAVELL	3					Ę
CITY; HED. STIFF;	HOIST,		c	2. JAR SAI	MPLES.	
BROWNISH GRAY , S	santi,			A.00'-	24'	ŀ
35-83" MED/HIGH R	นรก-	1		3:2.4'-	35'	į
CITY, HARD; DRY;	BRN			C: 3.5'-8 D: 8.3'-1	3.3′	E
CITY, HARD; DRY; GRAY; SANDY E : 83'- 12-2': HED/HIGH	3,W 3		_	E: 12.2'	13.1	ŀ
PLASTICITY; HARD YELLOW BEN & E GRAY; SANDY & SI	o; Dev,		D	F: 13.1%	16.0	-
GRAY; SANDY & SI	ĽΥ	۱ ۱		4:16.0	- 200	E
12.2 10 16 0			٢.	ţ		Ę
GRAVEL			١,	3. DRILLI	NG.	ŀ
TOWN: DEVISER	o FINE; DNG	1	F	HOTE BO	ZING OFFSE	, [
122'-131' COLESE TO ROUND; DEY; STR. BON; SANDY & C	MYEY	1	├	50' WEST	•	J
YELLOW BENE UT	HODI;			SET 14'	O'-1601 CF CASING	.
160' 16 34.7's	~~~)	j	4	CLEVICO	F CASING	o:
SHALE 4 SANDSTO	ONE:	1	1	L-CORE	200'- 35 o'.	1
INTERLAYERED: UK	WEA.		<del> </del>	1	,	
INTERLAYERED; UN. ARE THERED; DK. ARE LT. GRAY; NOD. TO HOD HARP,	AY 10	1	١			ı
TO HOO HAEP,	HOD.	١.	101			
B . GENERATED! HV	عماذد					-
235-246.5MD	>>To√€			1		1
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HOUS EDITIONS ARE DESCLETE.		SAOIEC.	<b>A</b> 366	er duu	BALC	36

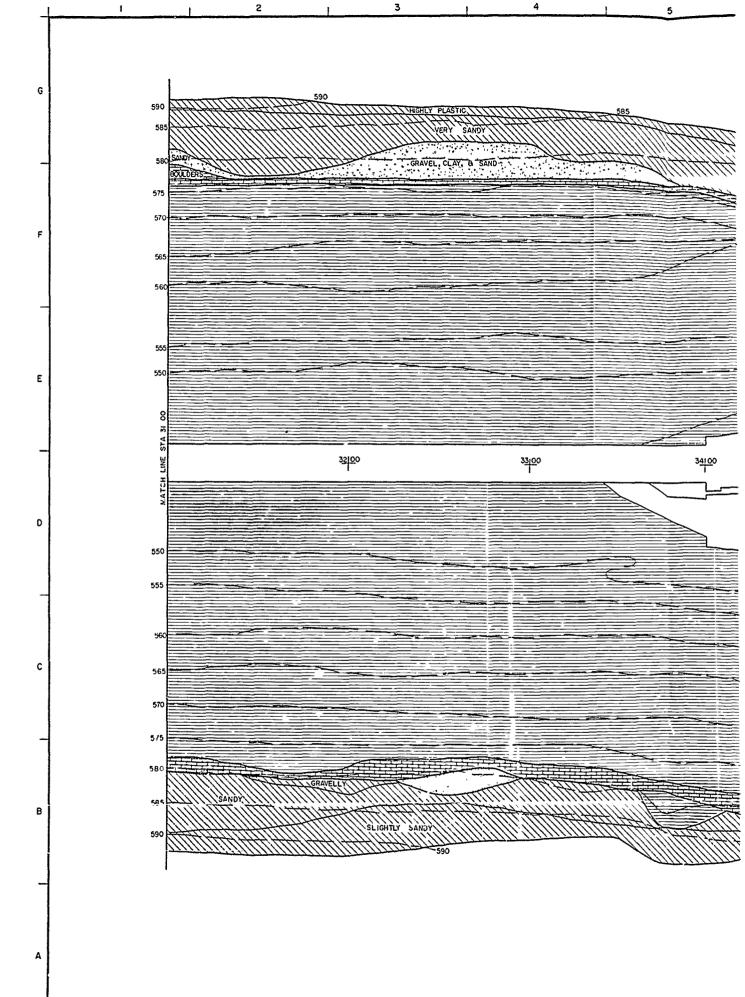
							Holo No. BAGC-366	
DRILL	ING LOG	O	5WD	INSTALL		FW	0/ 2 141211	
AU' 2	Y DAM	- 0	OUTLET WORKS	11 DATE	440 TTPE	OF BIT	B"AUGCE L"CARPOLOY	
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Oinectio CE vente	. 07 more		#44 /8## 74#1	M DATE	HOLE		ARBBI SFEBBI	
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			10 0'		ATUAL OF	HIPECT	704 BORING 961	
TOTAL D	PTH 07 HOL	٠.,	250.	٠.,	- 4444		(C/C/	
ELEVATION	DEPTH LE	ᅊᅃ	CLASSIFICATION OF WATERIN		ACCOV.	14 10 1	weathering, etc., if significant	
<u></u>	00-	-	00'6 170'					F
	Ĭ	ı	00'6 170' CLAY			A.	I WATER LEVEL	E
	-]	- 1	00:31' HIGH PLAS	T/17V			18 HPS AFTER	F
	=	ı	STIFF, HOIST, RE	D4"			BAILING WATER LEVEL WAS @ 178"	E
	-]	- 1	KEDOISH BEN, S	ANDY			72 HRS AFTER .	F
	=	- {	5 SILTY 31'-12.3' HED-HIG			5	LEVEL WAS & 17.5'	E
	-]		PLASTICITY, HAR!	);		-	TEAST MYS (19)	E
	#		DRY, YELLOW - BY LT. GRAY, SAND	2NG	ļ .	l		E
			SILTY	15	l	<del> </del>	2 JAR SAMPLES	E
		- 1	-			1	A 00'-31'	E
	• –∃				١,	C	78 31'-81'	þ
		í					C. 8.1'- 12.3' D: 12.3'- 17.0'	E
			123:170' LOW-HE	>	1		E 17.0'- 19.8'	E
	∃	į	PLASTICITY, MET	>	ļ	l	F 19.8'- 250'	E
	-		PAUS BENEYE	HOIST	1	٥		E
	I B		Ben, very say sand seams	VOY,		້	3 DRILLING	þ
	1 4		_	•	1	1		E
	]		170 16 25.0				NOTE GRAVEL ON	ļ:
l	1 =		GRAVEL			١.	LOCATION	Έ
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	20 =		COLESE, ROUND,	TRONG	1	-	AUGER REFUSAL	Ė
	E		I BEN' SANDY É C	LAYEY	1	l	16 250' 6 COENG	E
	1 =		19 8: 250, 92 3pole	2-	١	F	250'-350'	F
	ΙΞ		GRAY, VERY NO	ist	ļ	'	1	E
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l	200 E	.,.,	250'6 346'			<u> </u>	1	E
l	"	≝	SHALE ARENACE SOFT TO HOD	ous, Soer		1		Ė
l	<b>し 非</b>		UNWEATHERET	٠, کر	i _	Box		E
ł	_	==	UNWEATHERET MASSIVE; BENT	אווונ	1 %	Ι'		þ
	1 =	IT.	LOOKING @ 25 SCAT SANDSTO	באכ	1 3	l		E
	30-		SEAMS; SOUTH	òoro∙	1 3	<del></del>	4	ŀ
l	l" =		אל אואר נאאזי ב	AT:	8	l		E
ļ	- 王	☱	SAND SEAVS,	MOD.	4. COETIOSS (24 C 25 G)	Z		ŀ
1	#	☴	MOD CAMENT	ED, 4	3	~		Ė
1	الله ا	ᆣ	- GEAY					E
1	mu =	-::	250'-254' VEZ: Ben Dalah	ITE		<u>}</u> -	-{	Ė
Ì	1.ヨ	••	SEAM 26 1 - 26 3 - 5440	الدعد	٠. إ	1.		Ę
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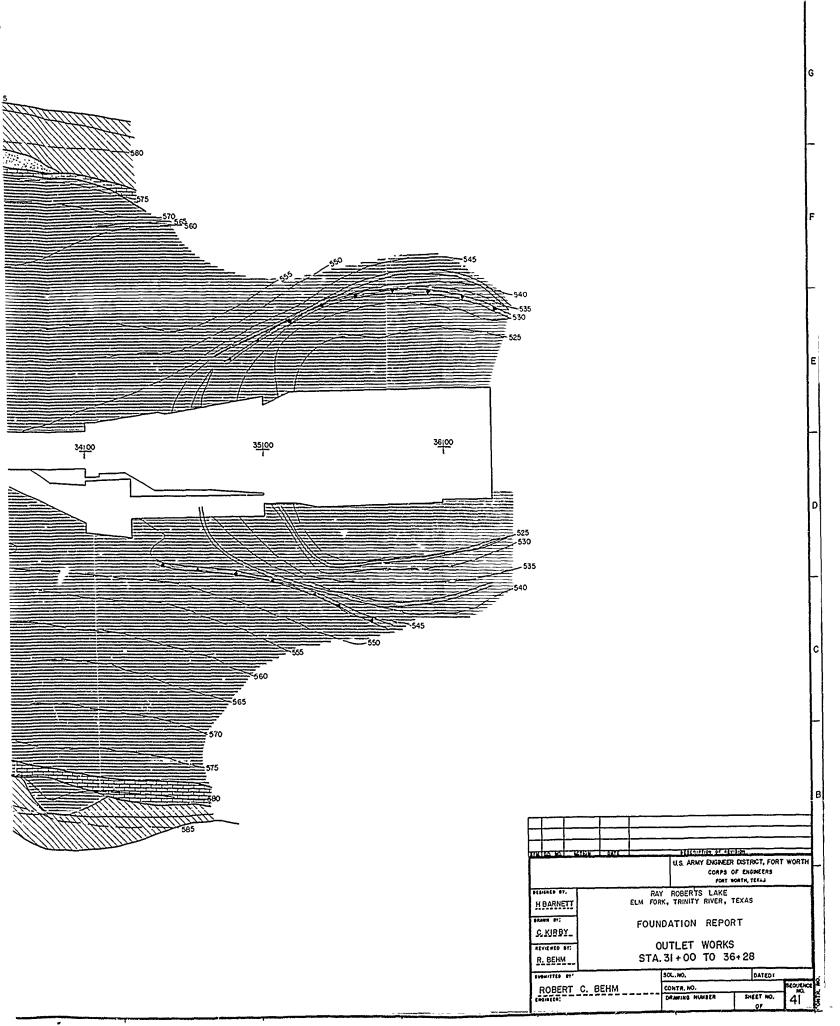
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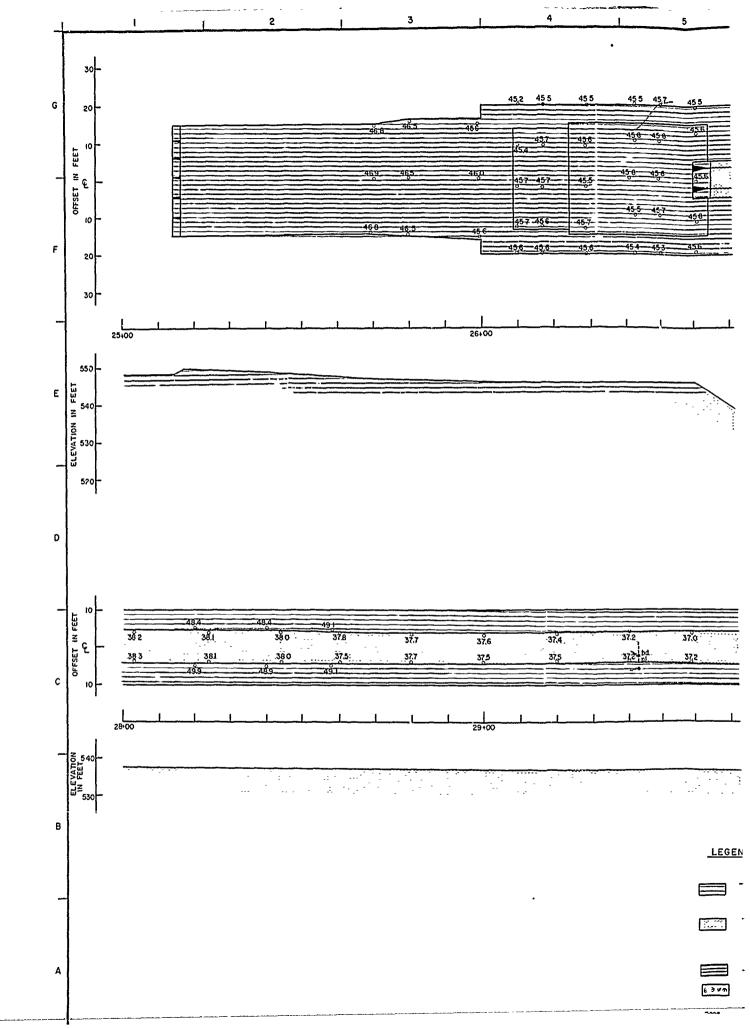
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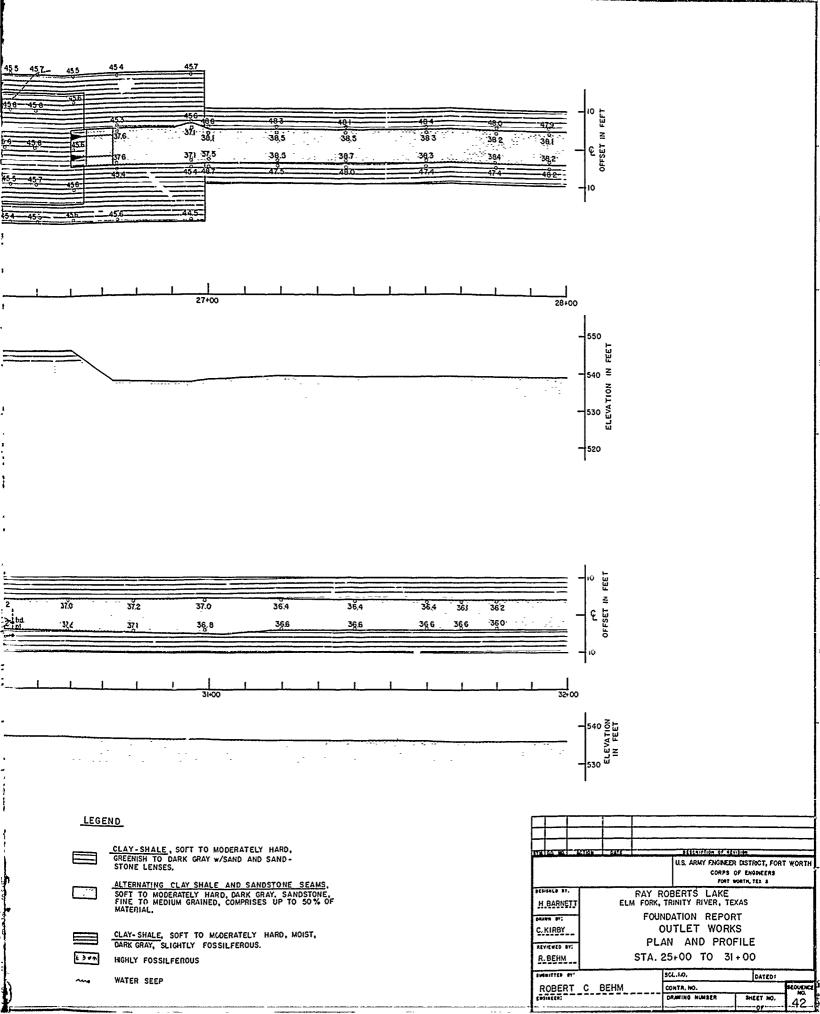
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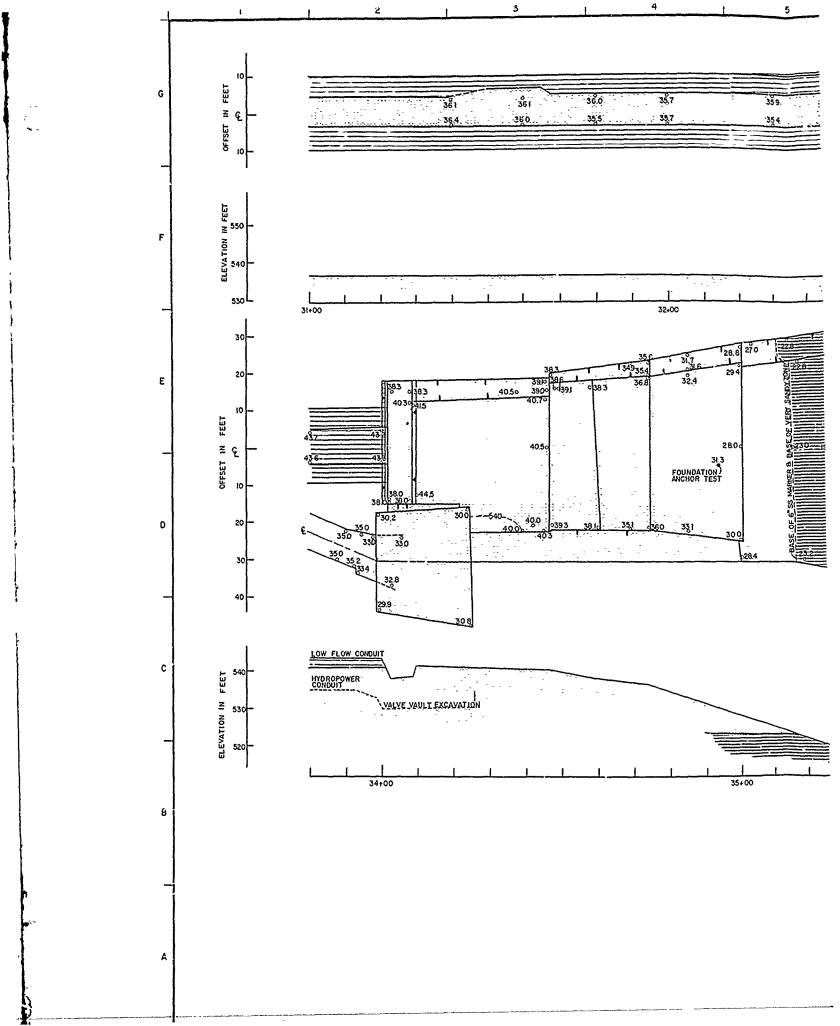


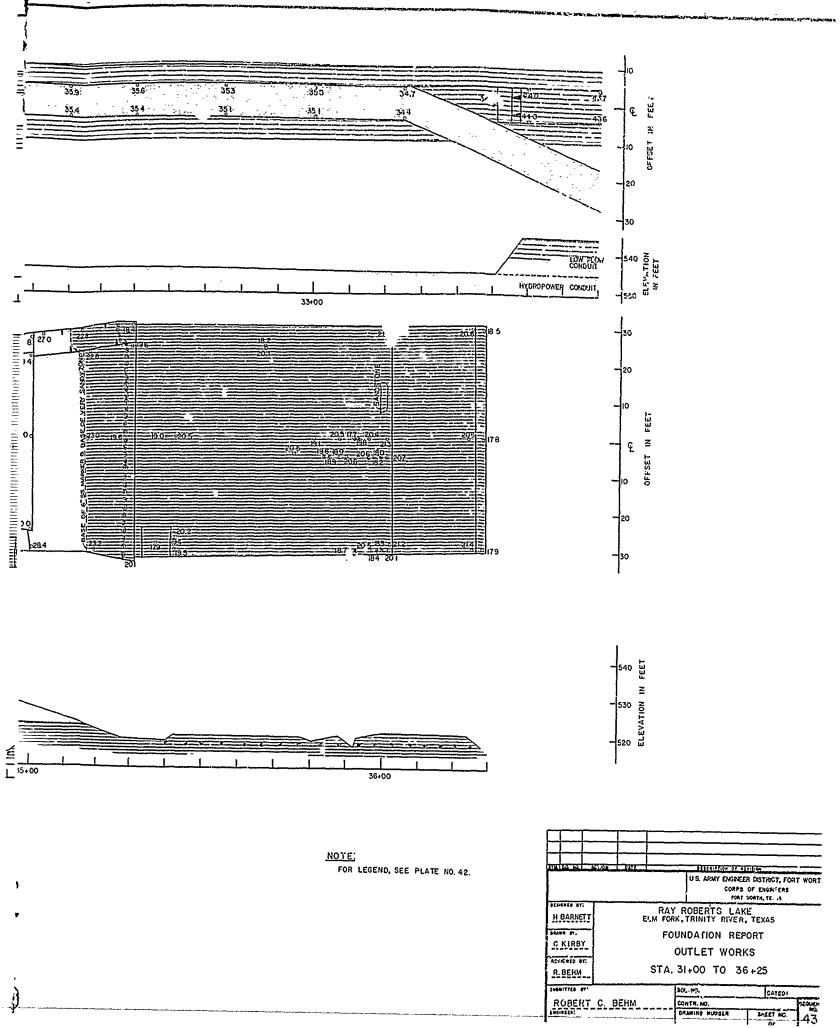


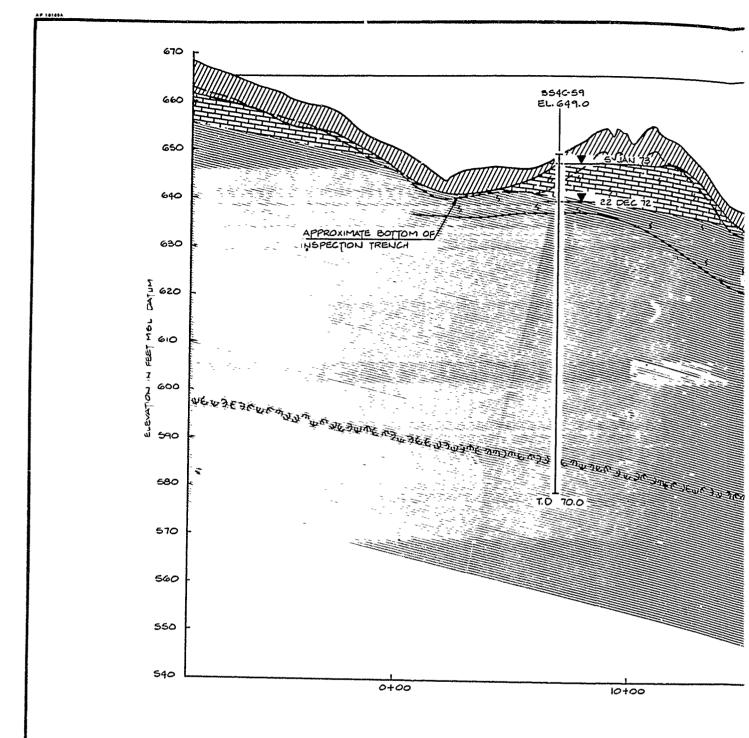




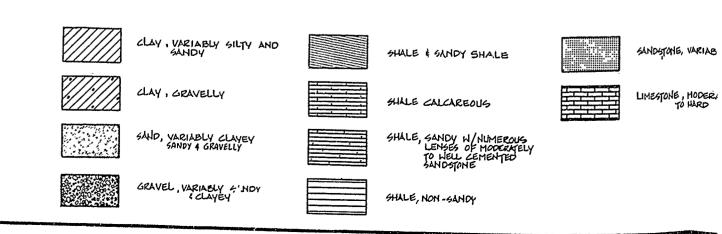


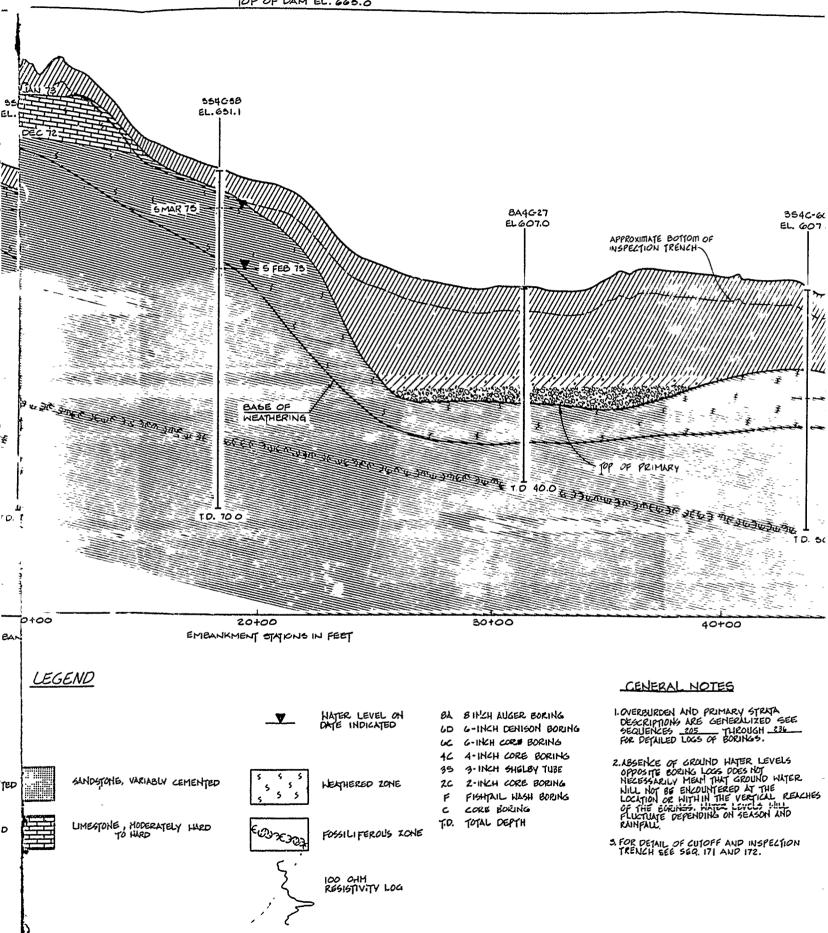


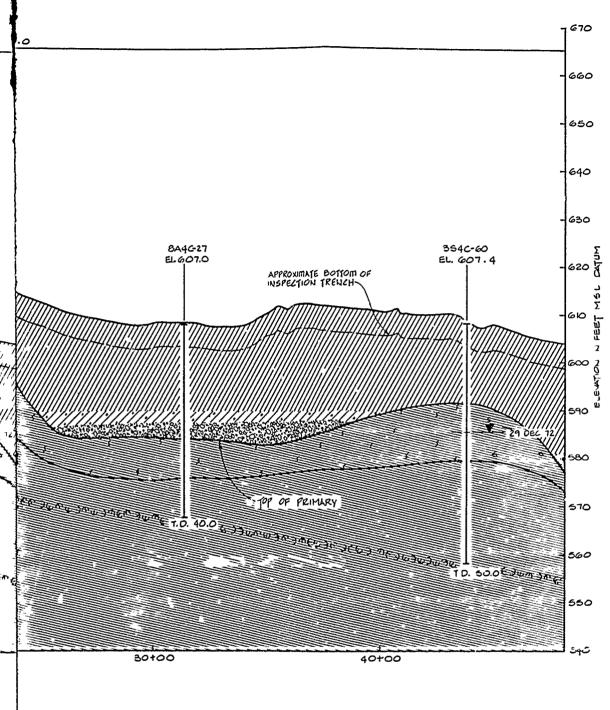




## LEGEND







## CENERAL NOTES

LEVEL ON
IDICATED

BA BINCH AUGER BORING

CC G-INCH CORE BORING

4C 4-INCH CORE BORING

4C 4-INCH CORE BORING

39 3-INCH SHELBY TUBE

TED ZONE

CC 2-INCH CORE BORING

F FISHTAIL HASH BORING

C CORE BORING

T.D. TOTAL DEPTH

VITY LOG

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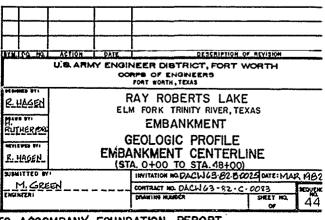
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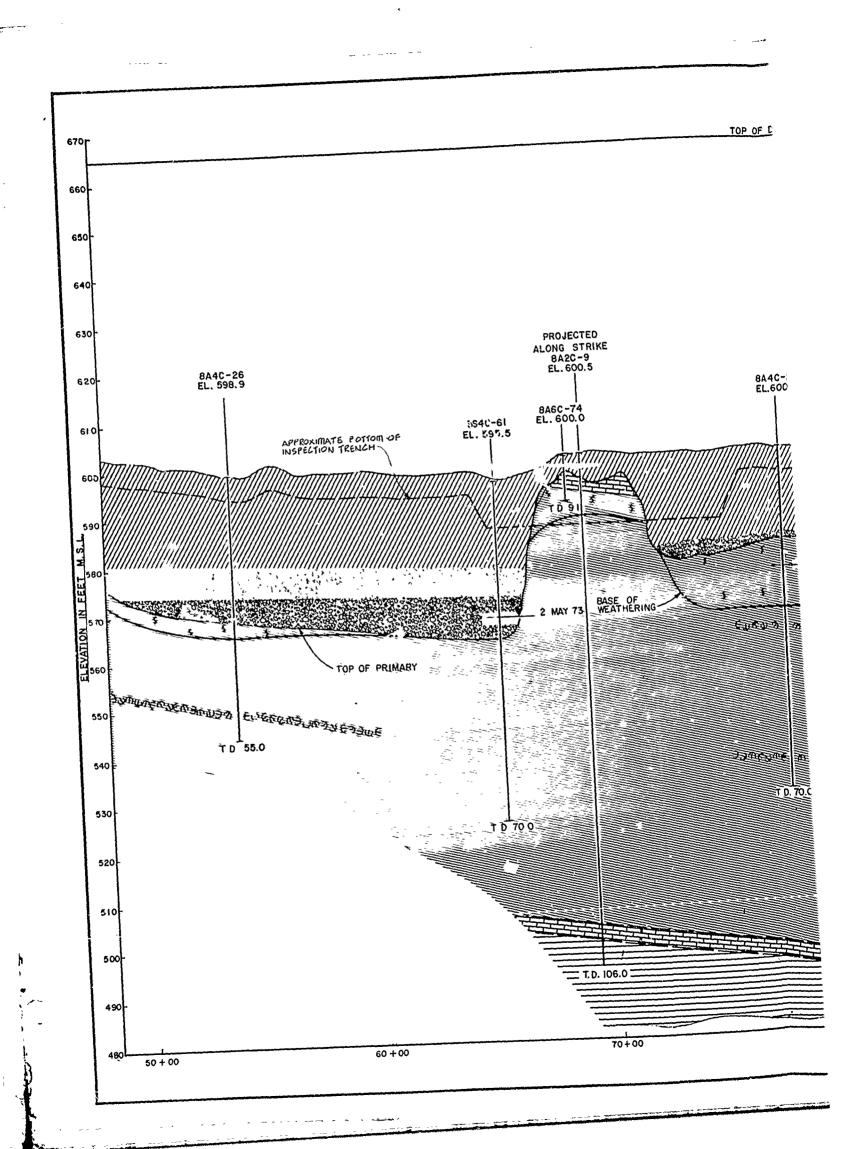
I.Overburden and primary strata Descriptions are generalized see Secuences <u>205</u> turdugh <u>226</u> For Detailed logs of Borings.

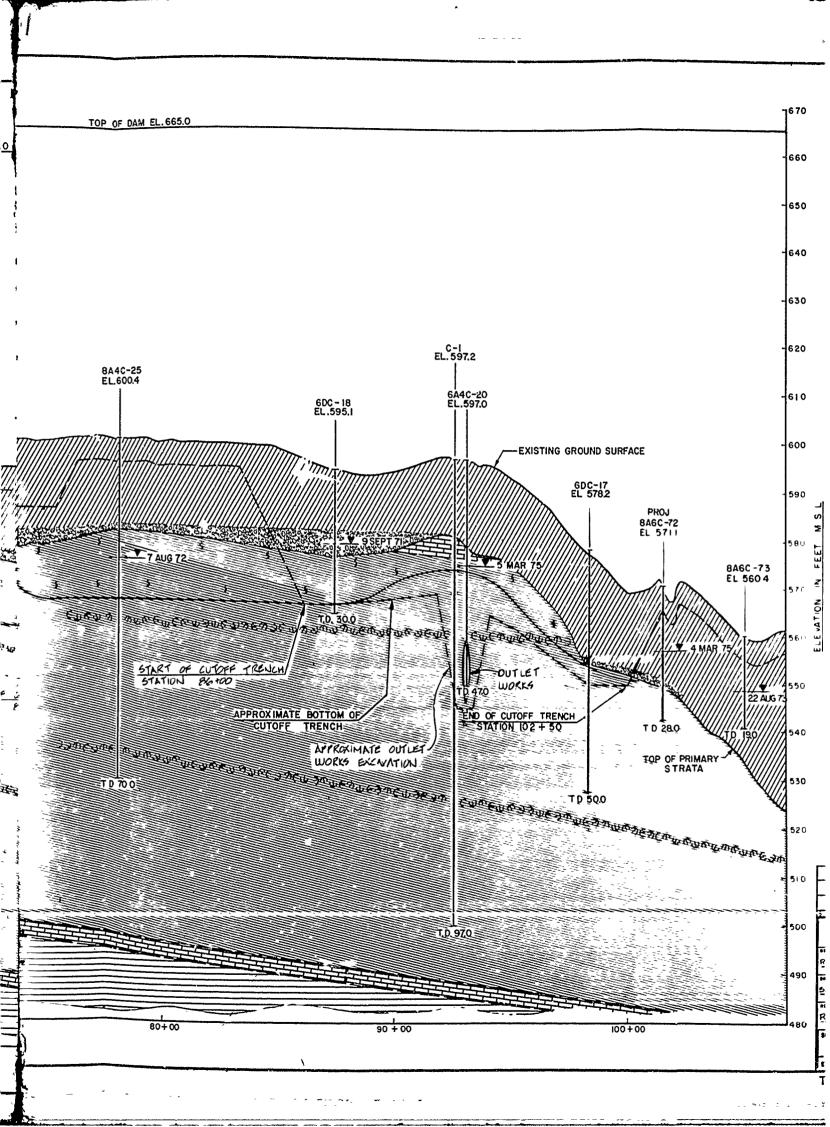
2. ABSENCE OF GROUND WATER LEVELS
OPPOSITE BORING LOGS DOES NOT
NECESSARILY MEAN THAT GROUND WATER.
WILL NOT BE ENCOUNTERED AT THE
LOCATION OF WITH IN THE VERTICAL REACHES
OF THE BORINGS. WATER LEVELS !!!!!
FLUCTUATE DEPENDING ON SEASON AND
RANDAUL.

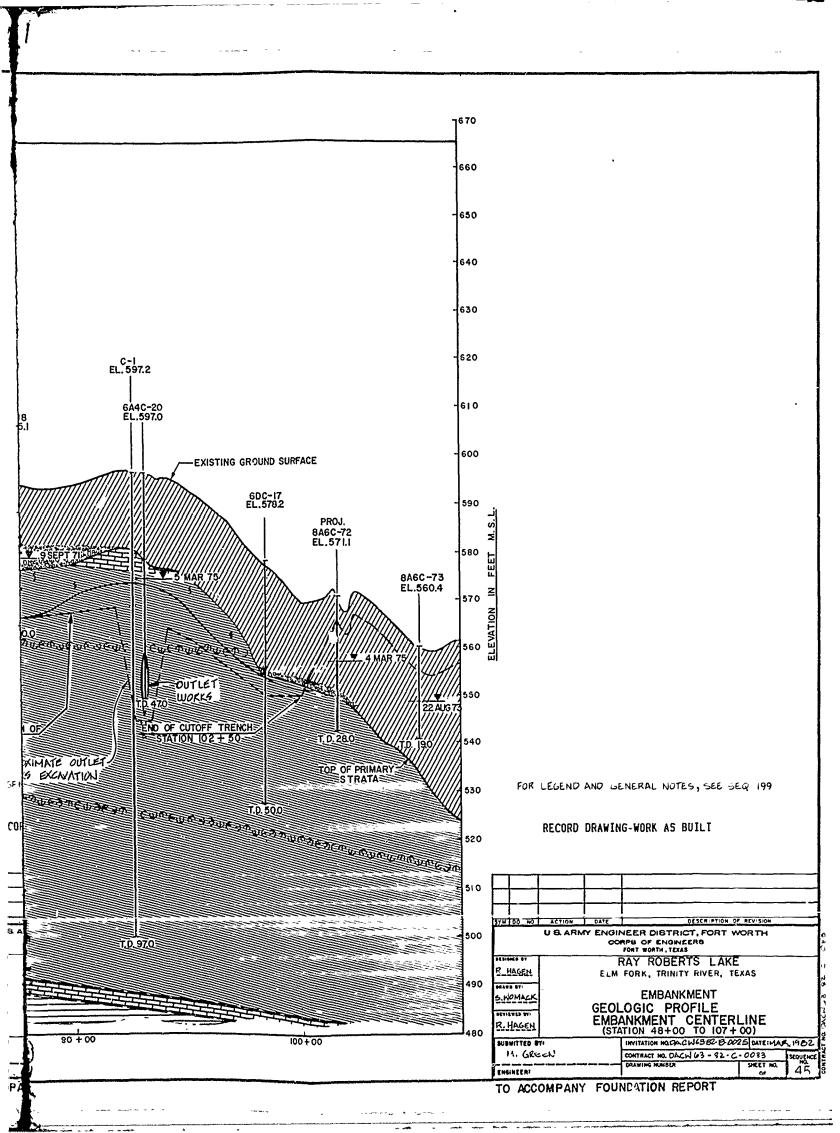
3. FOR DETAIL OF CUTOFF AND INSPECTION TRENCH SEE SEQ. 171 AND 172.

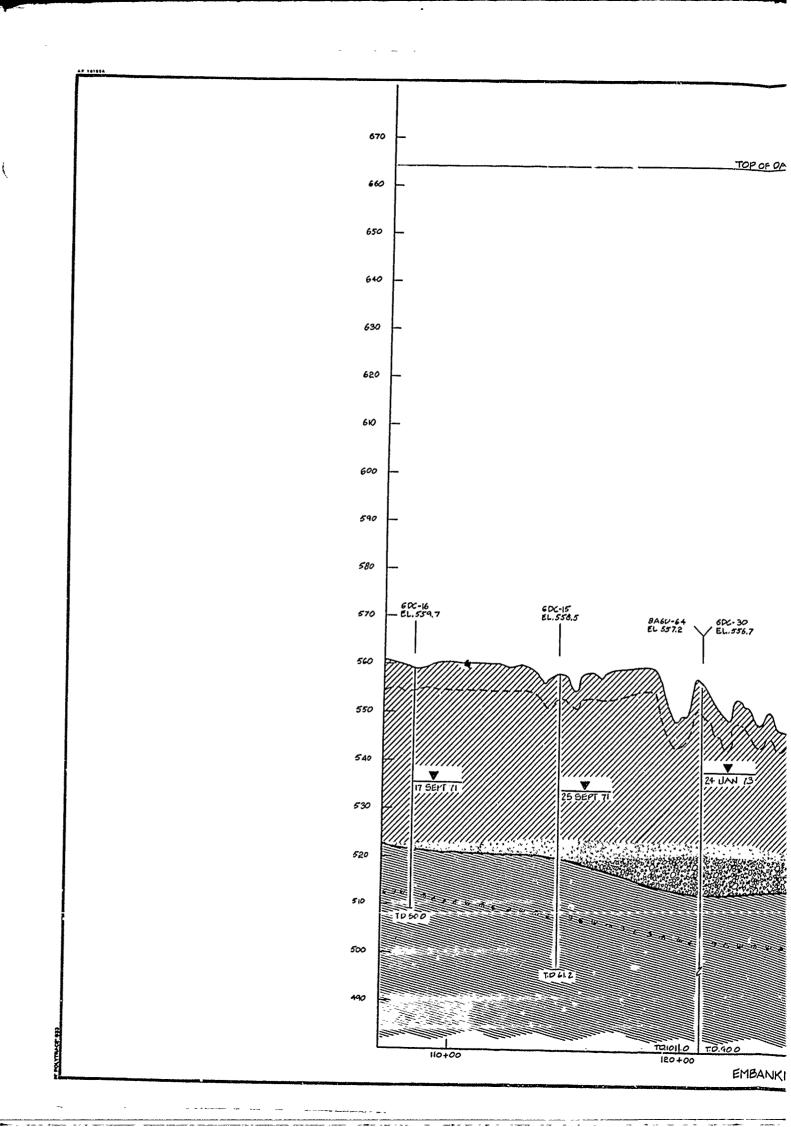
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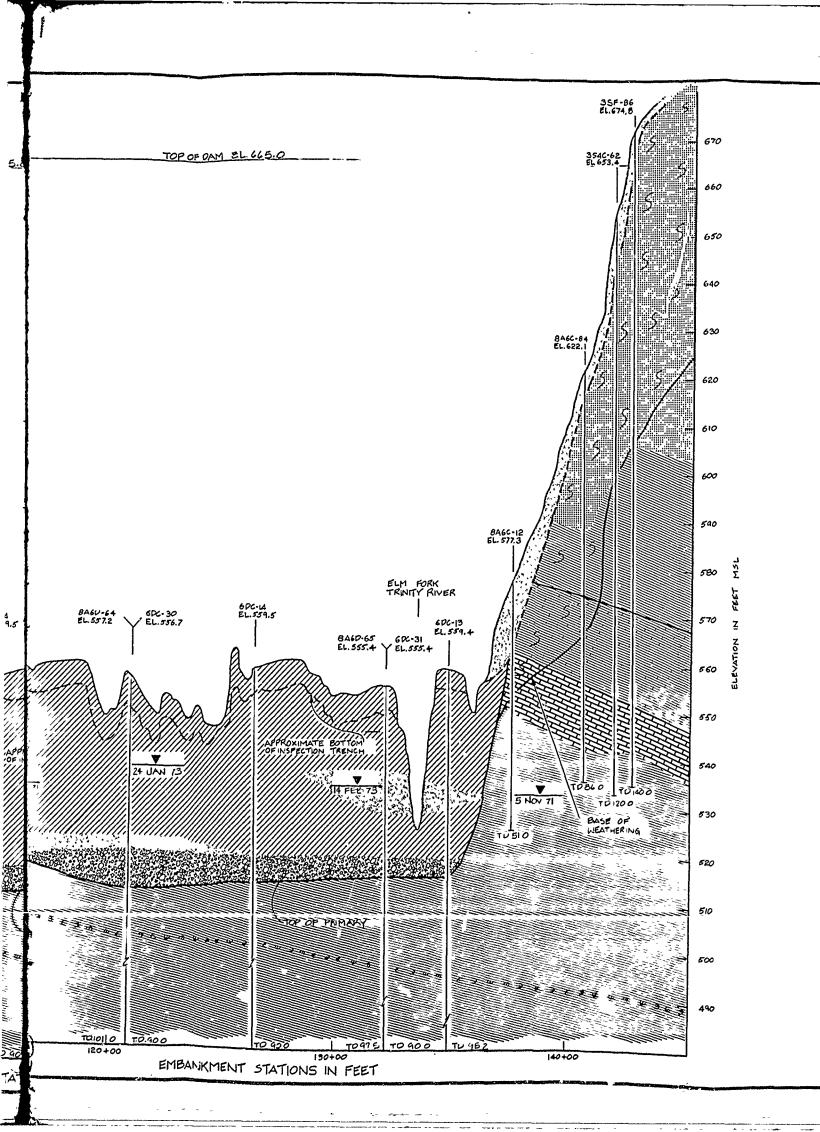








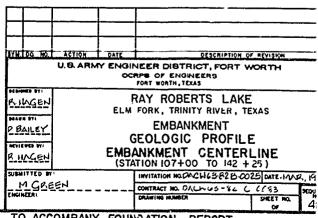




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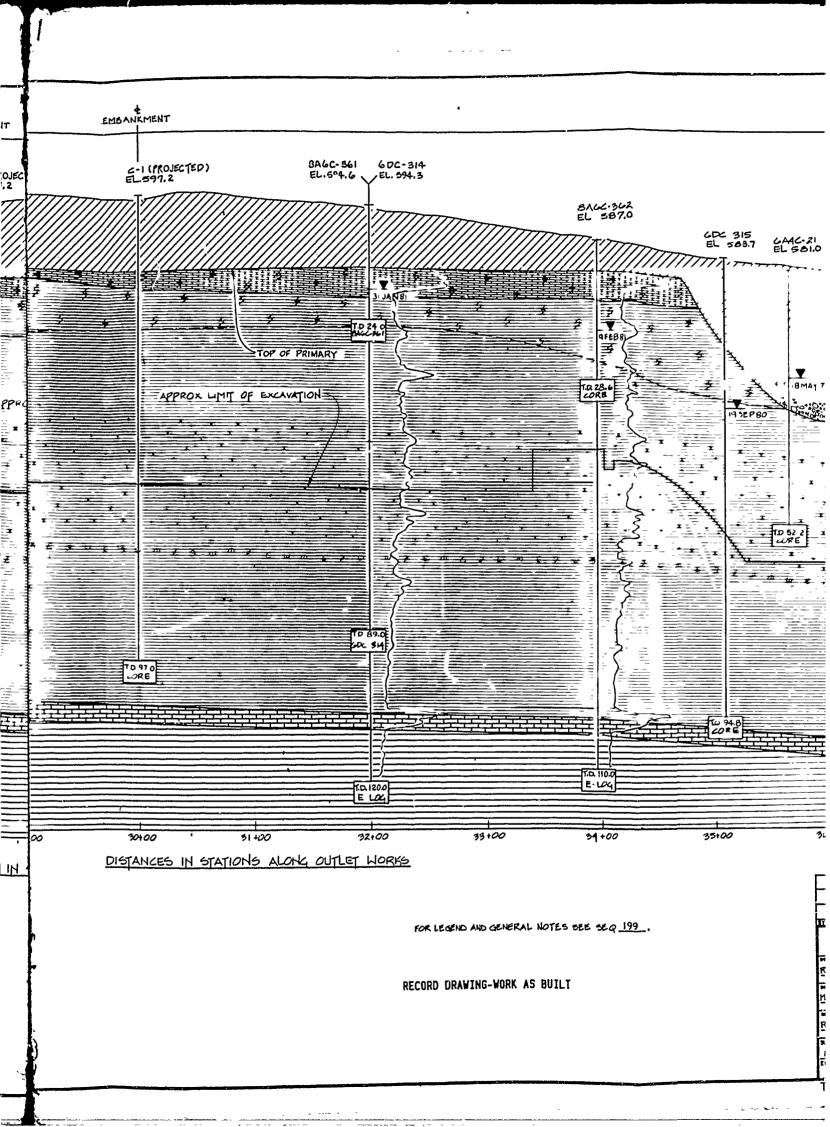
FOR LEGEND AND GENERAL NOTES SEE SEQ 191 .

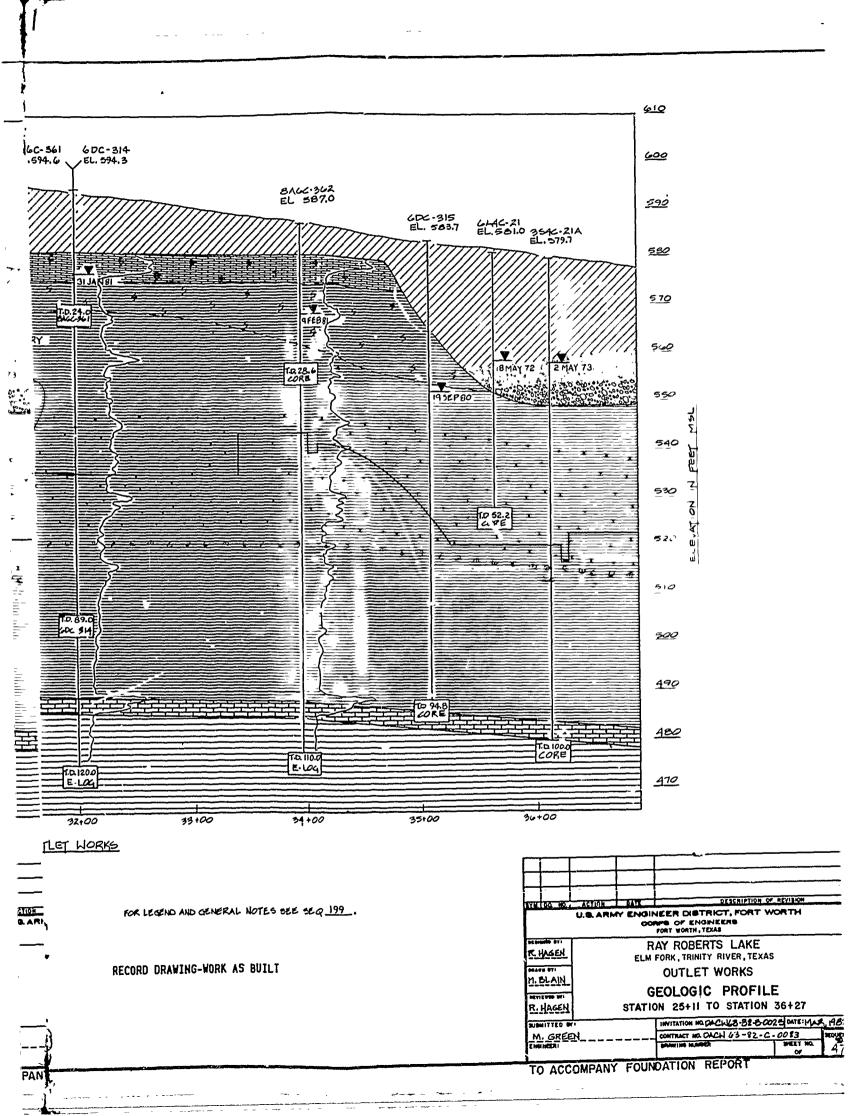
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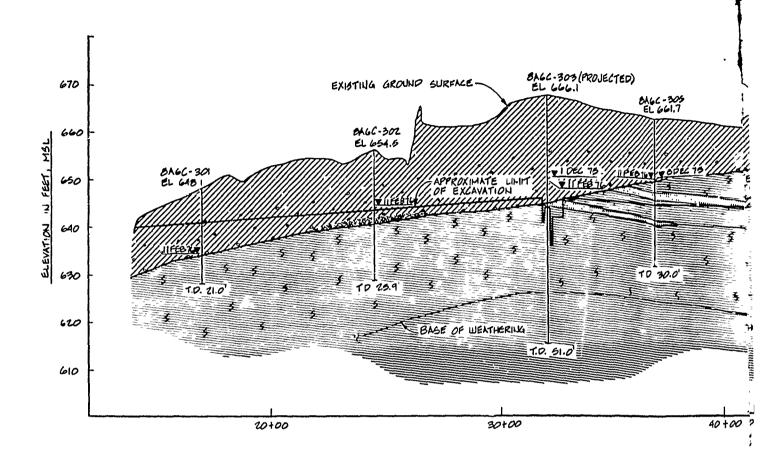


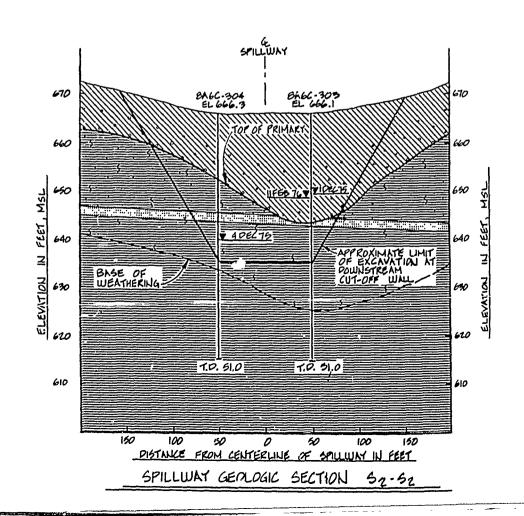
TO ACCOMPANY FOUNDATION REPORT

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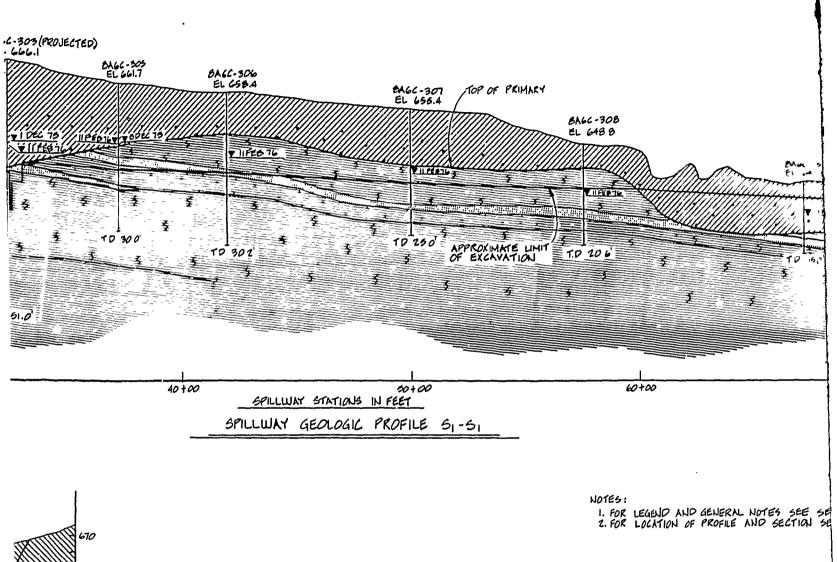


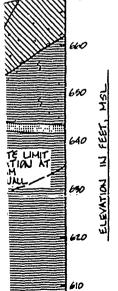




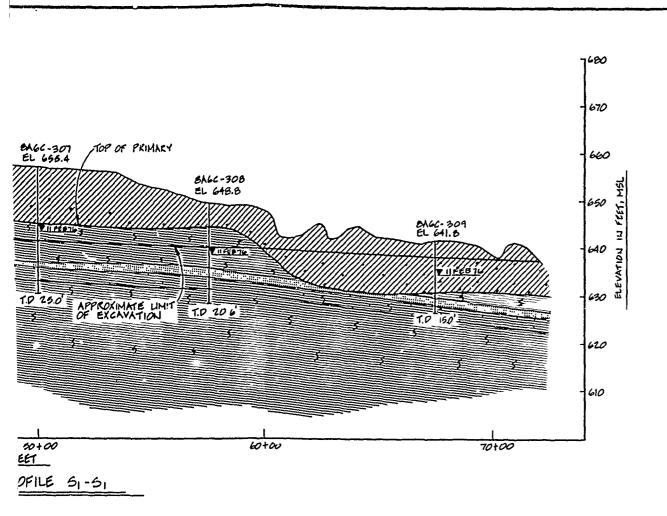


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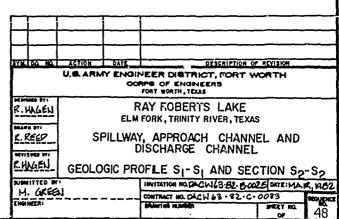
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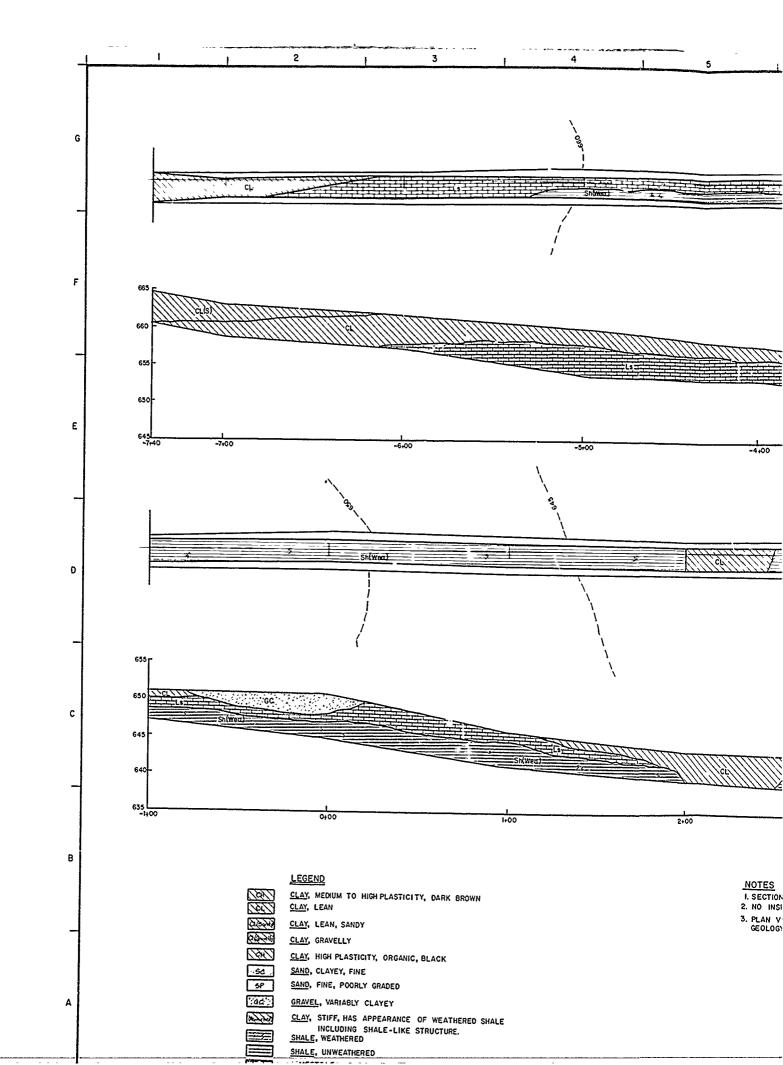
## NOTES:

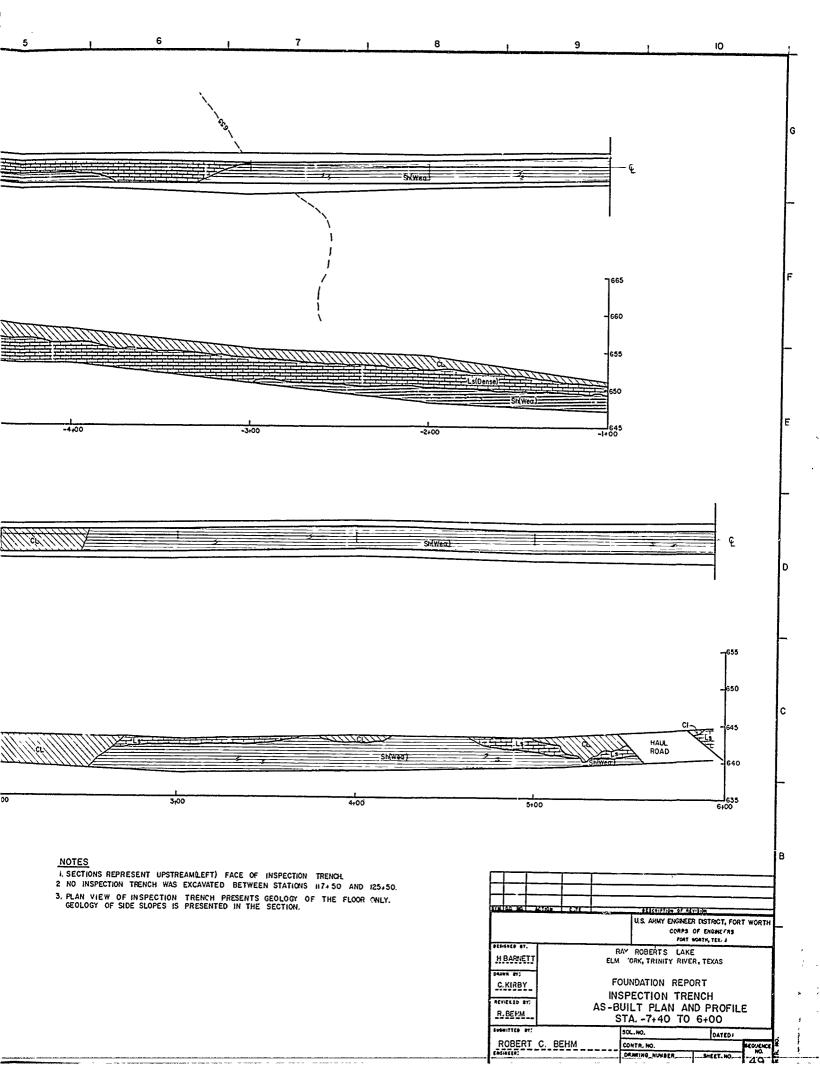
1. FOR LEGENO AND GENERAL NOTES SEE SEQ. 199. 2. FOR LOCATION OF PROFILE AND SECTION SEE SEQ. 180.

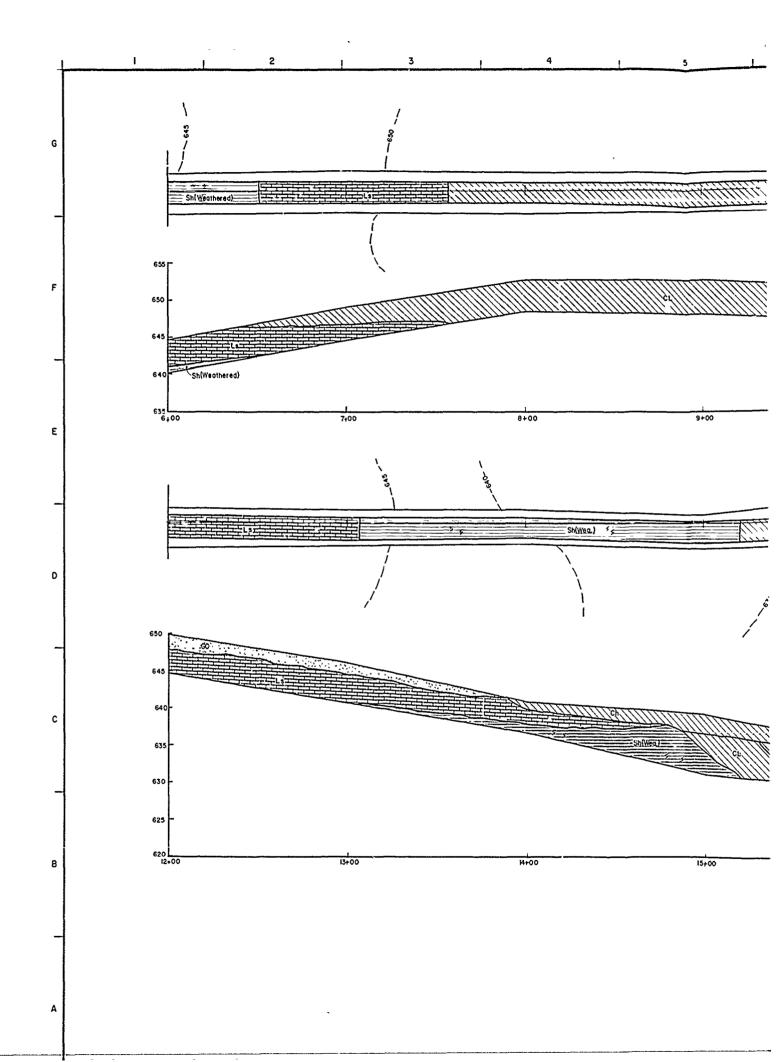
RECORD DRAWING-WORK AS BUILT

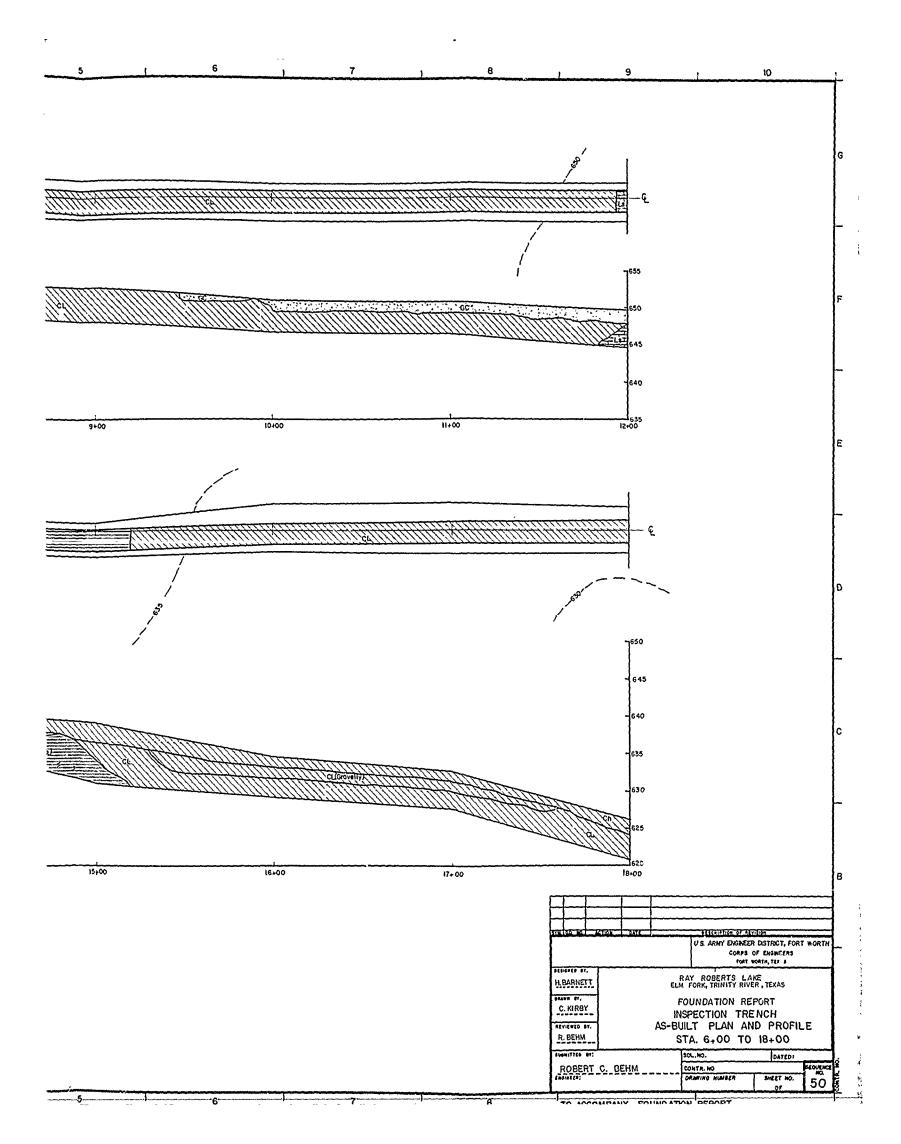


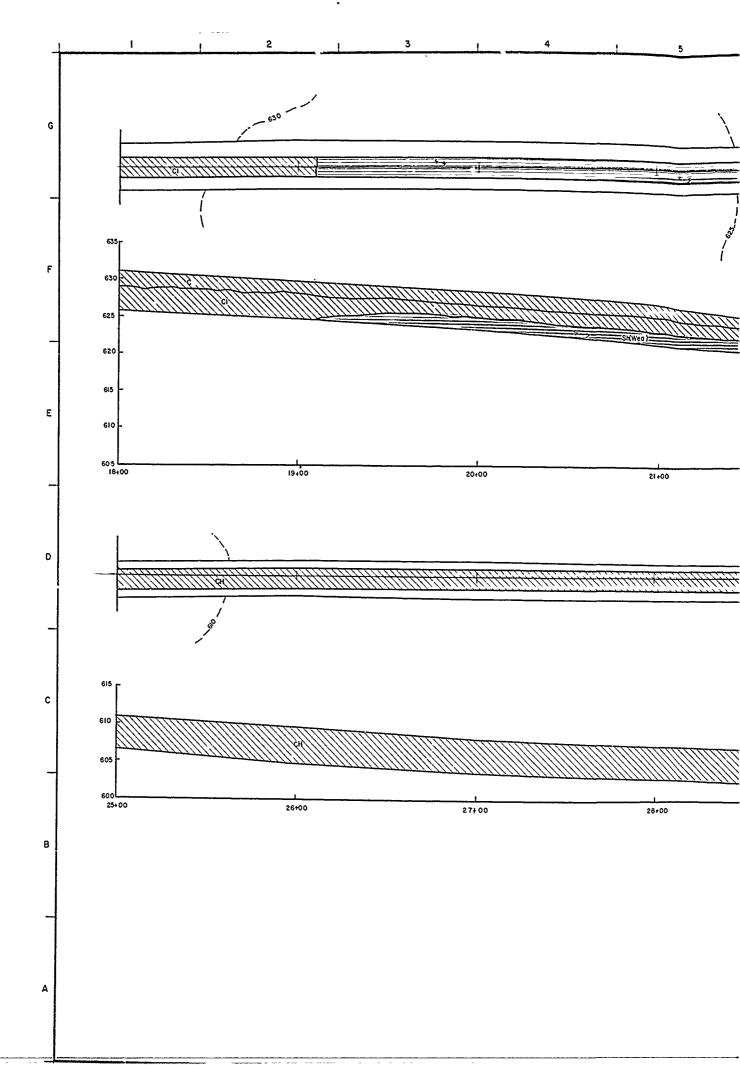
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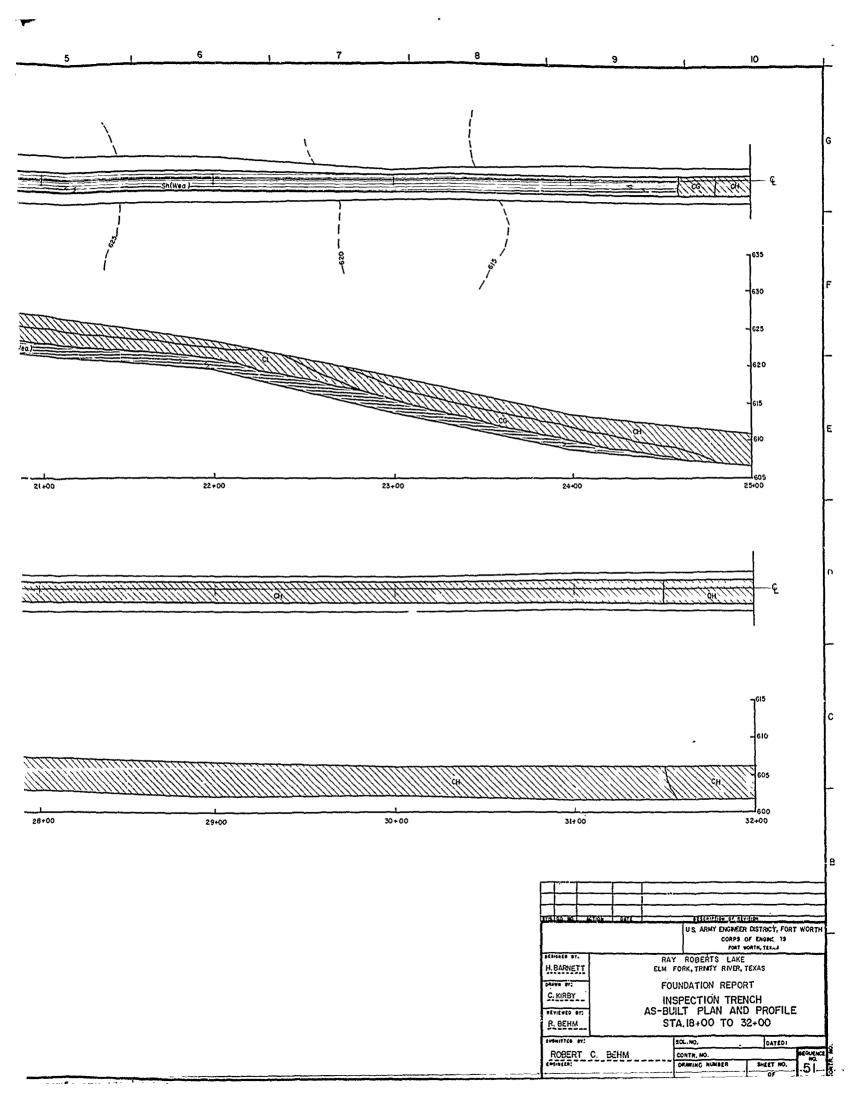


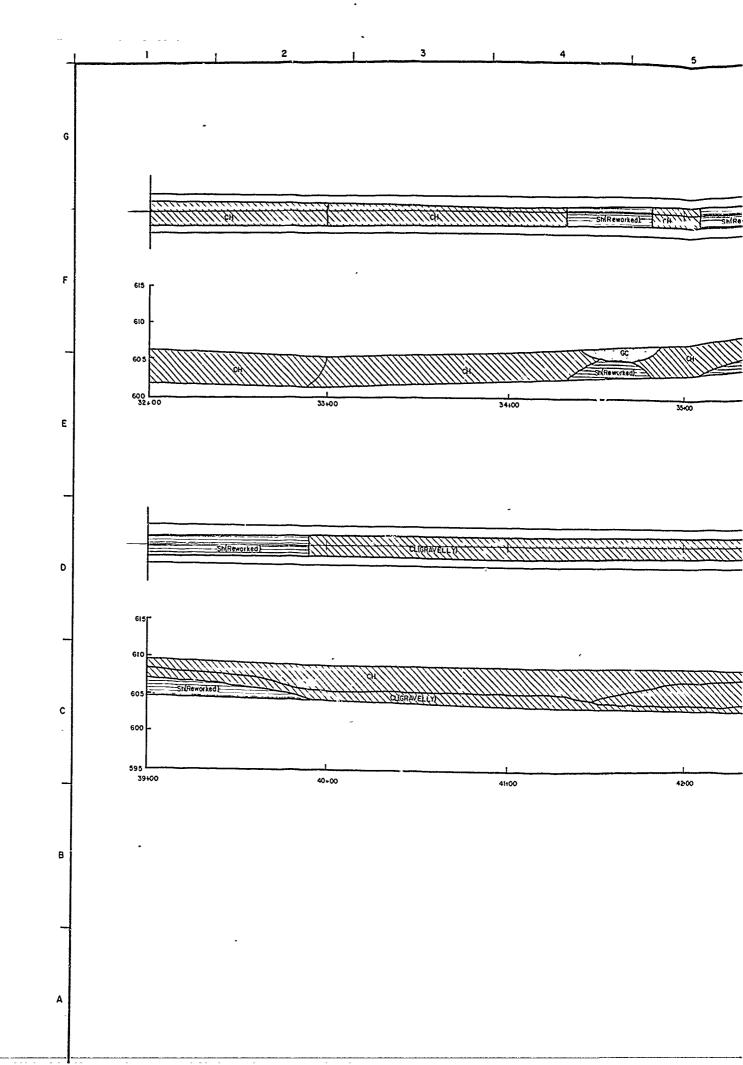


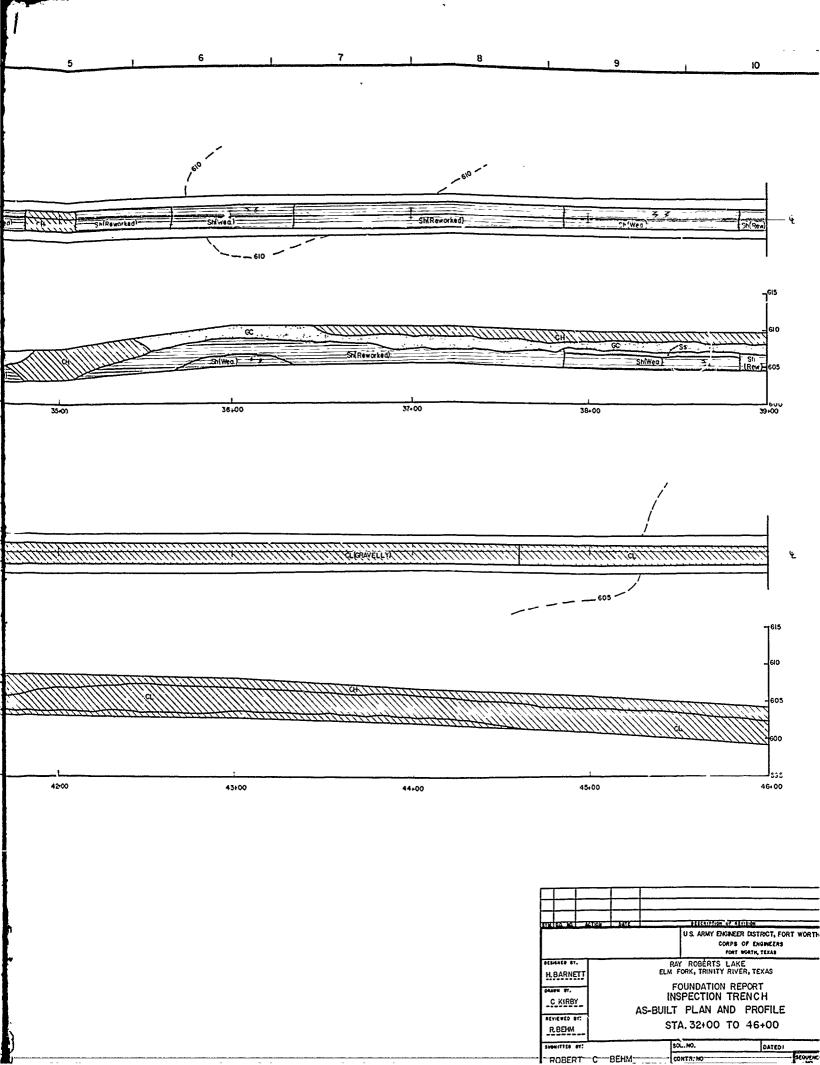


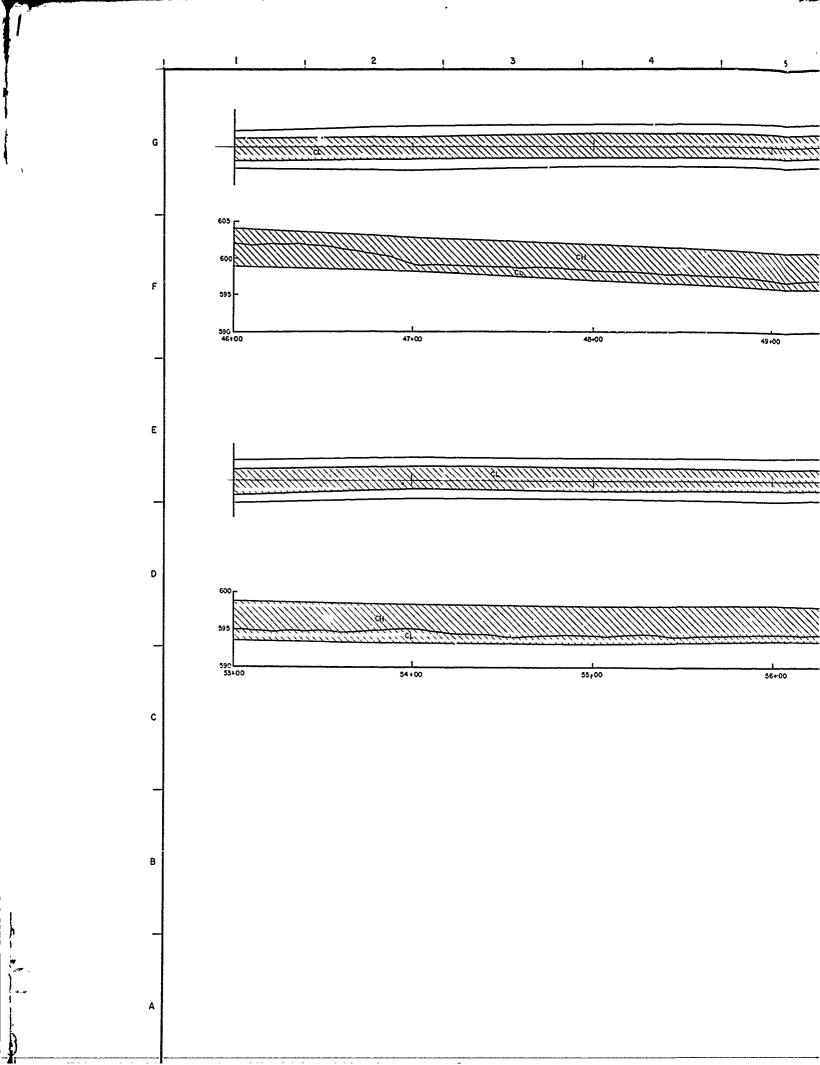


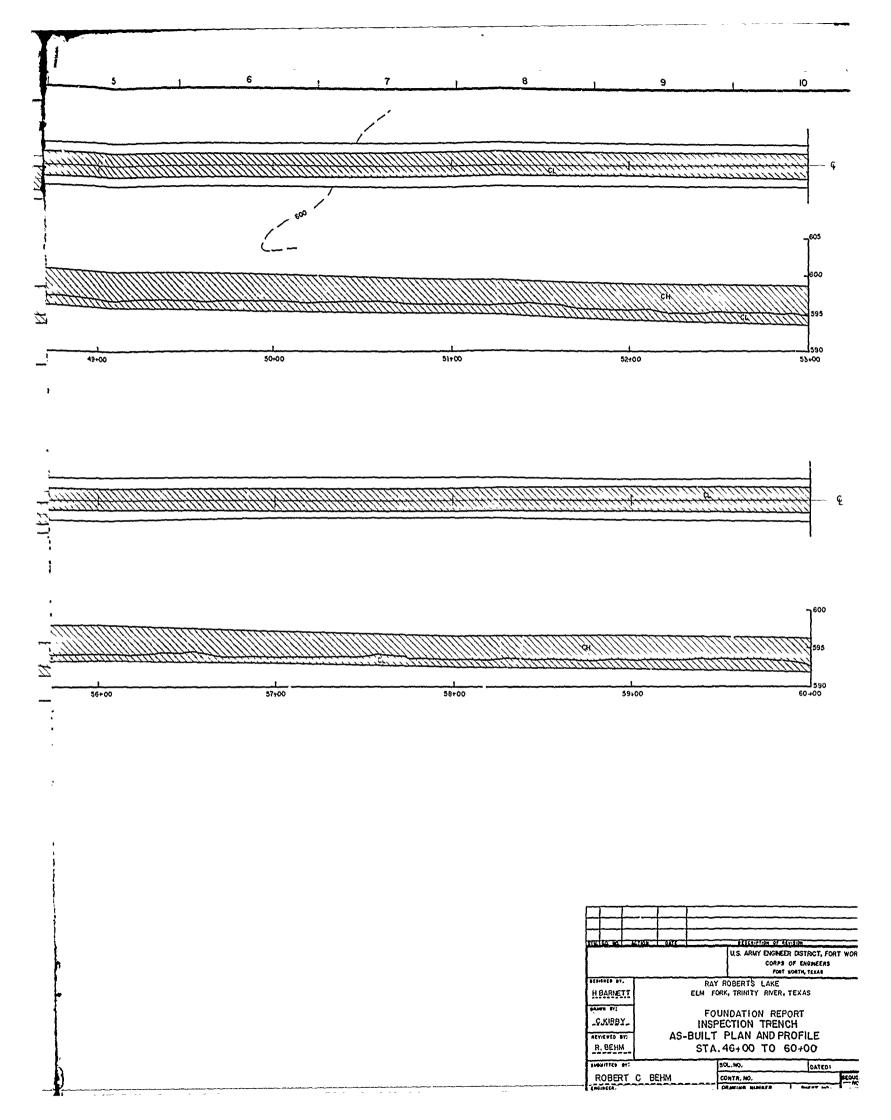


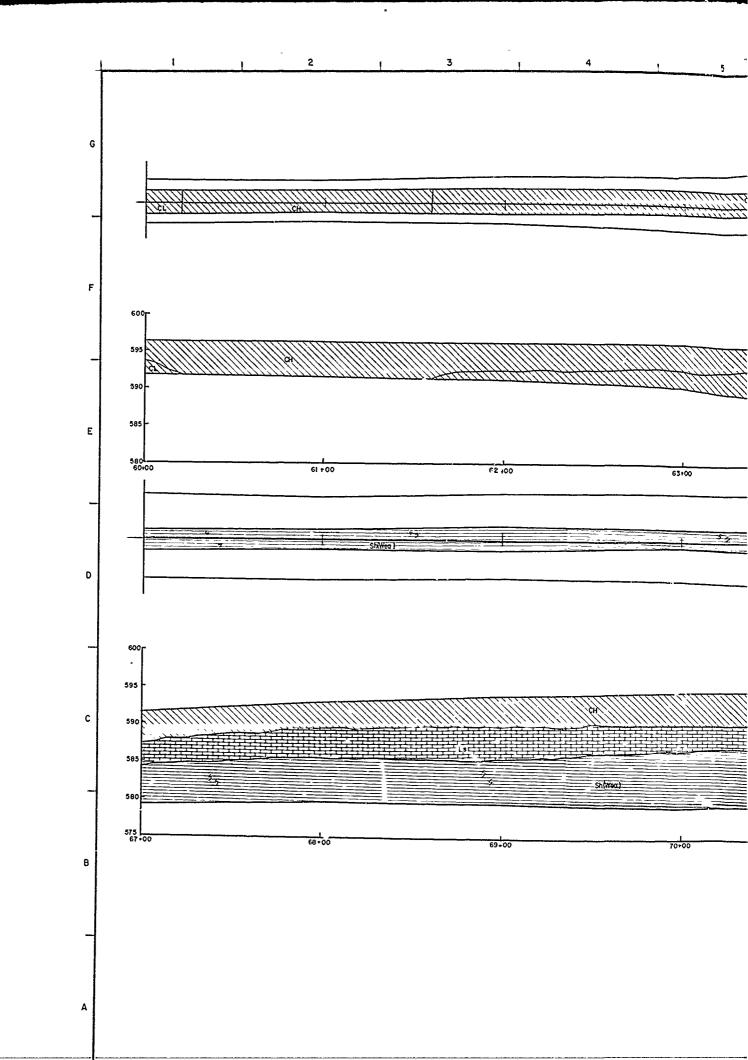


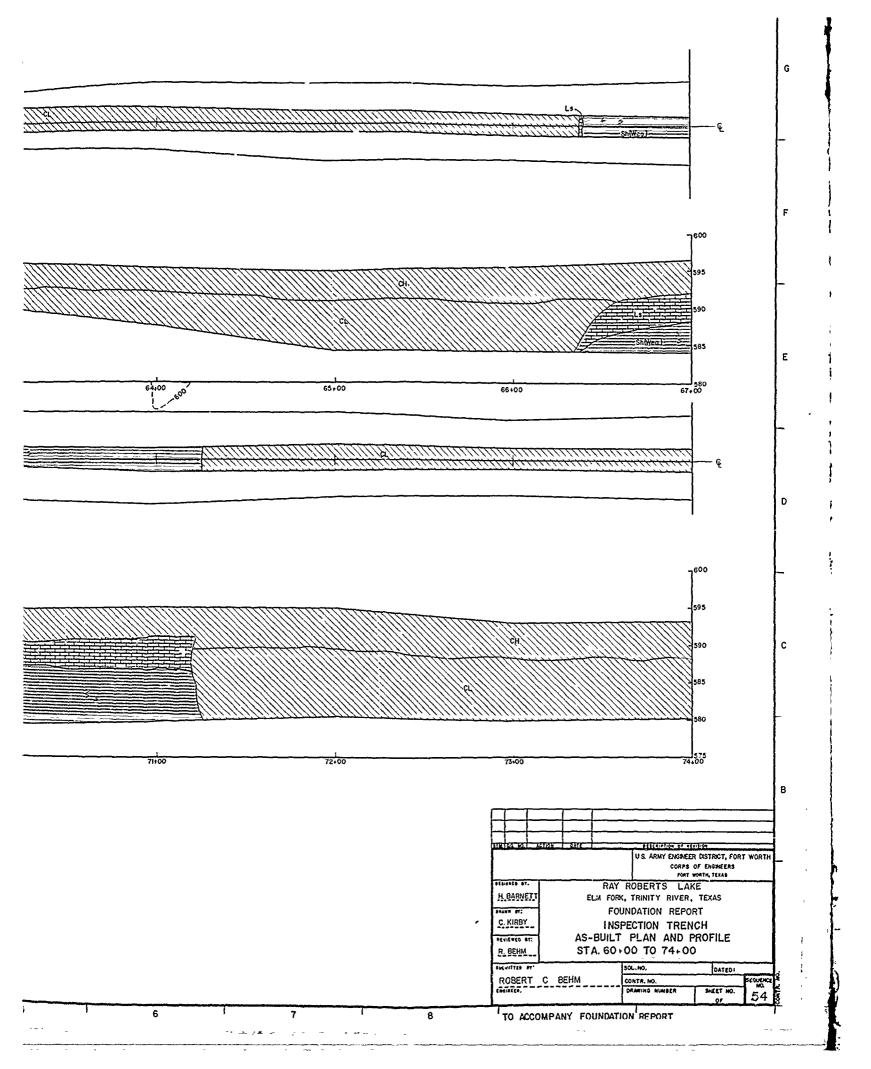


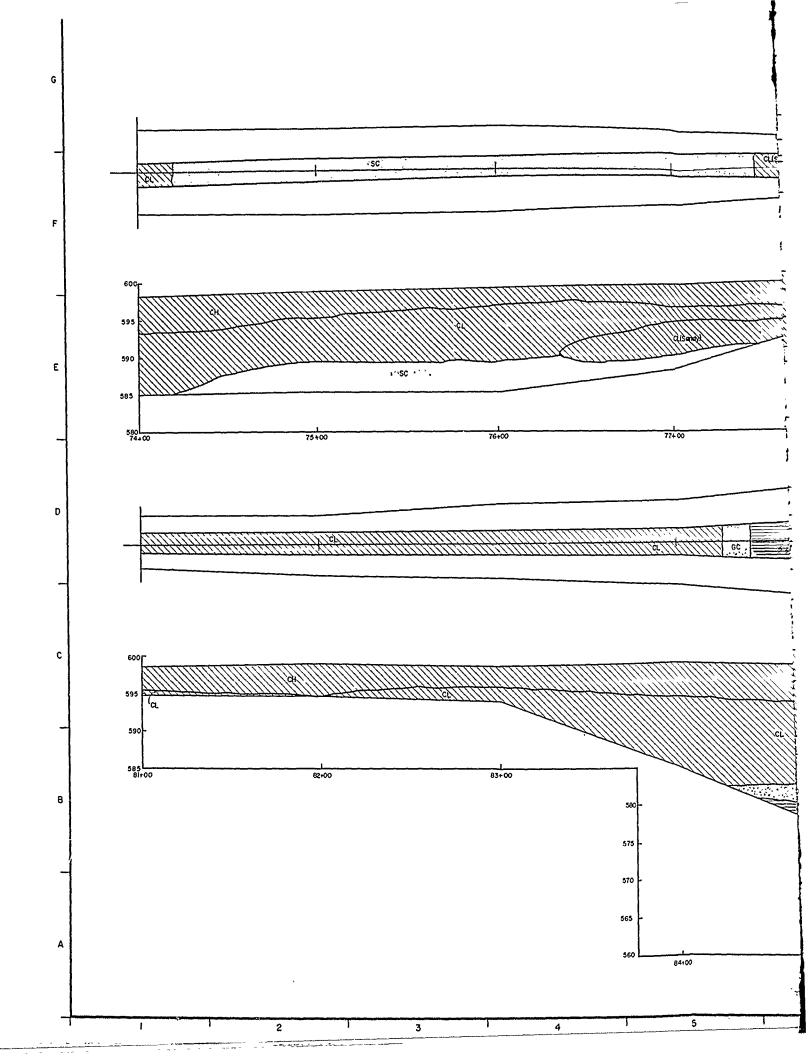


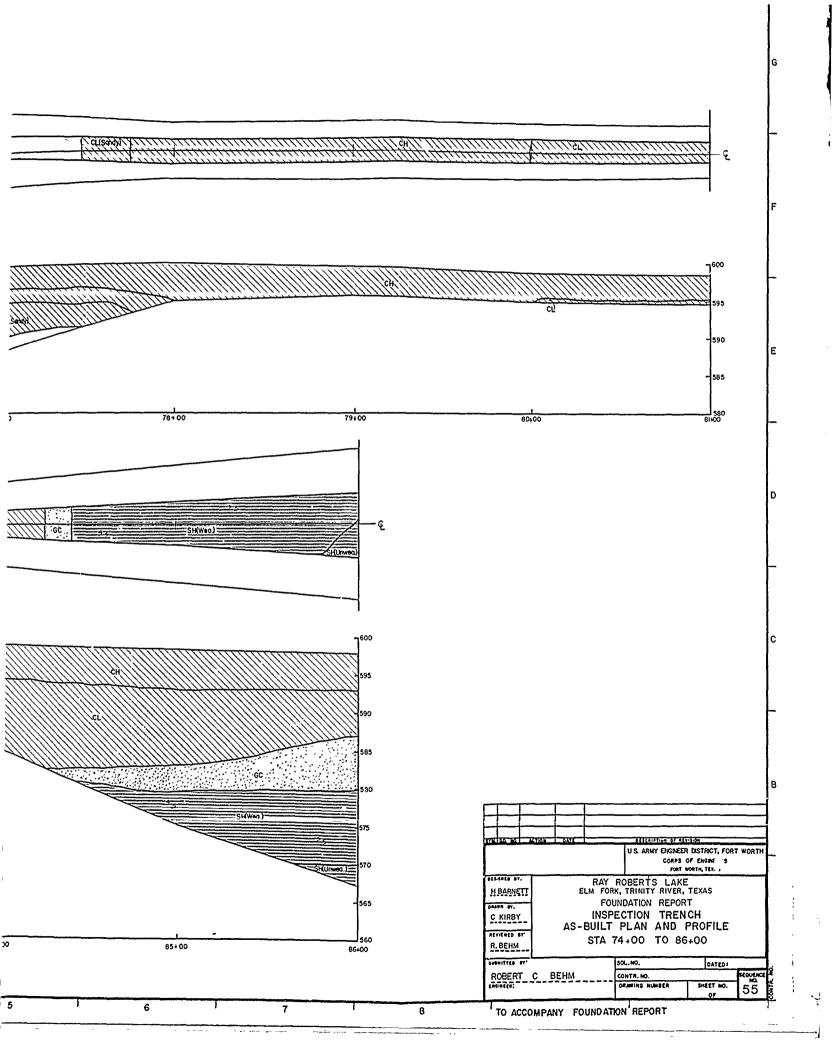


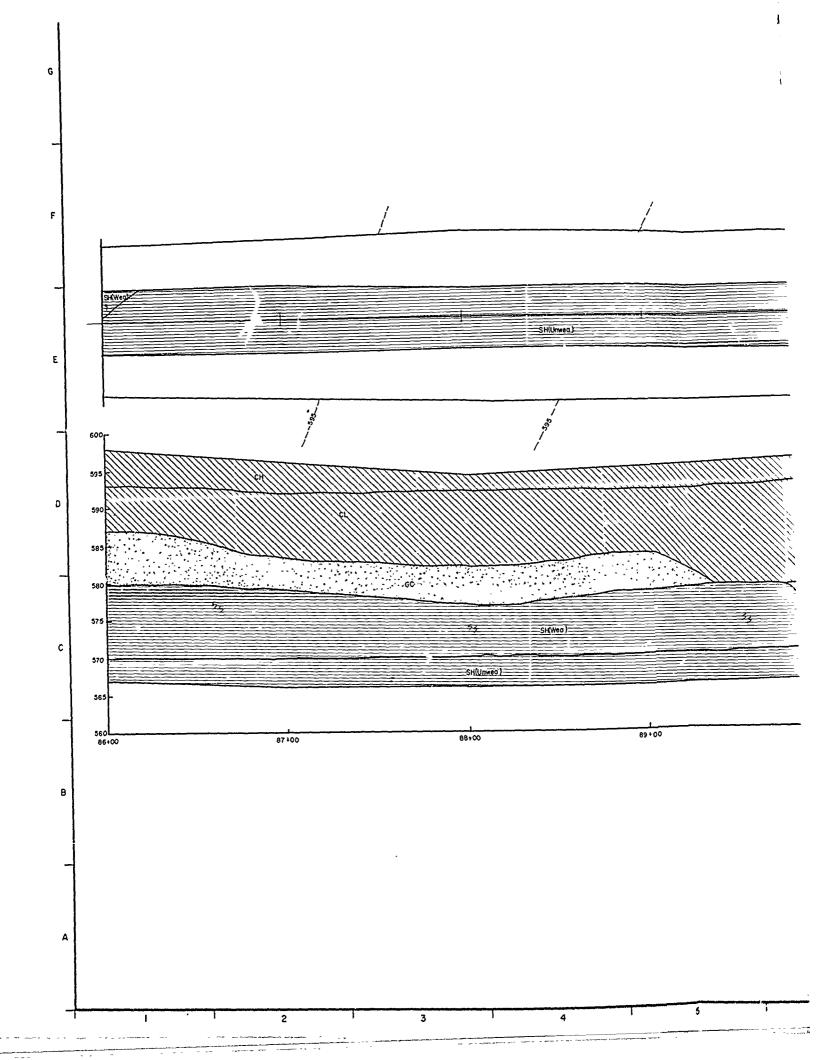


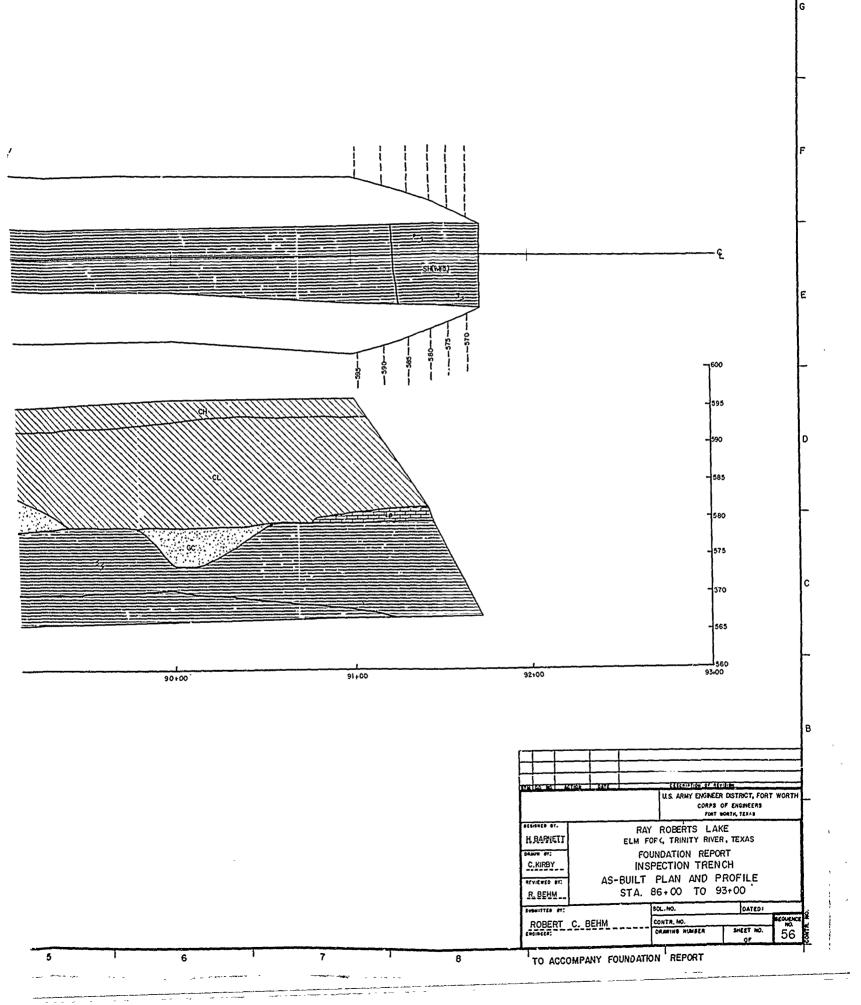


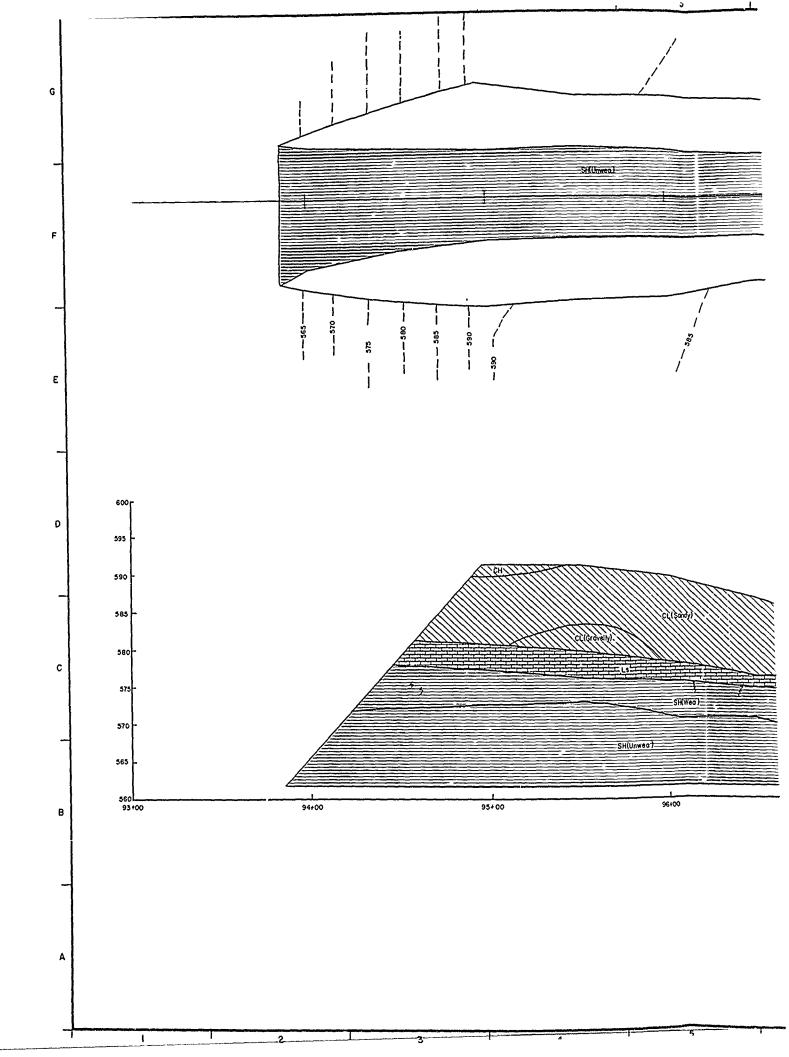


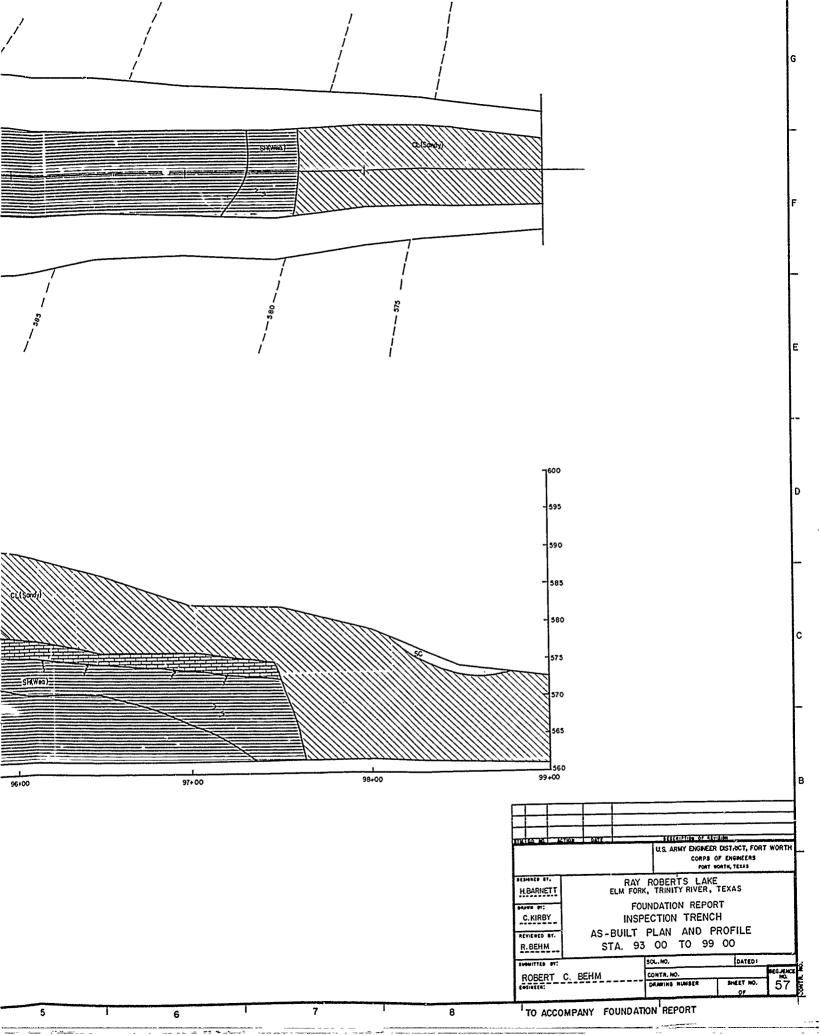


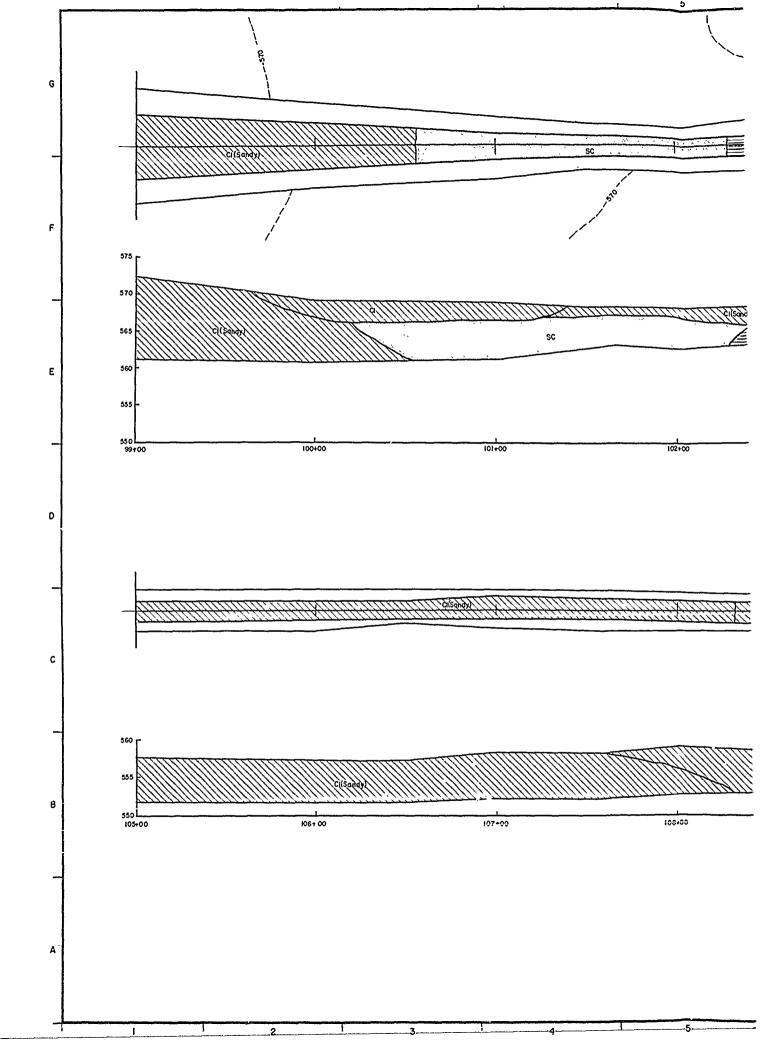


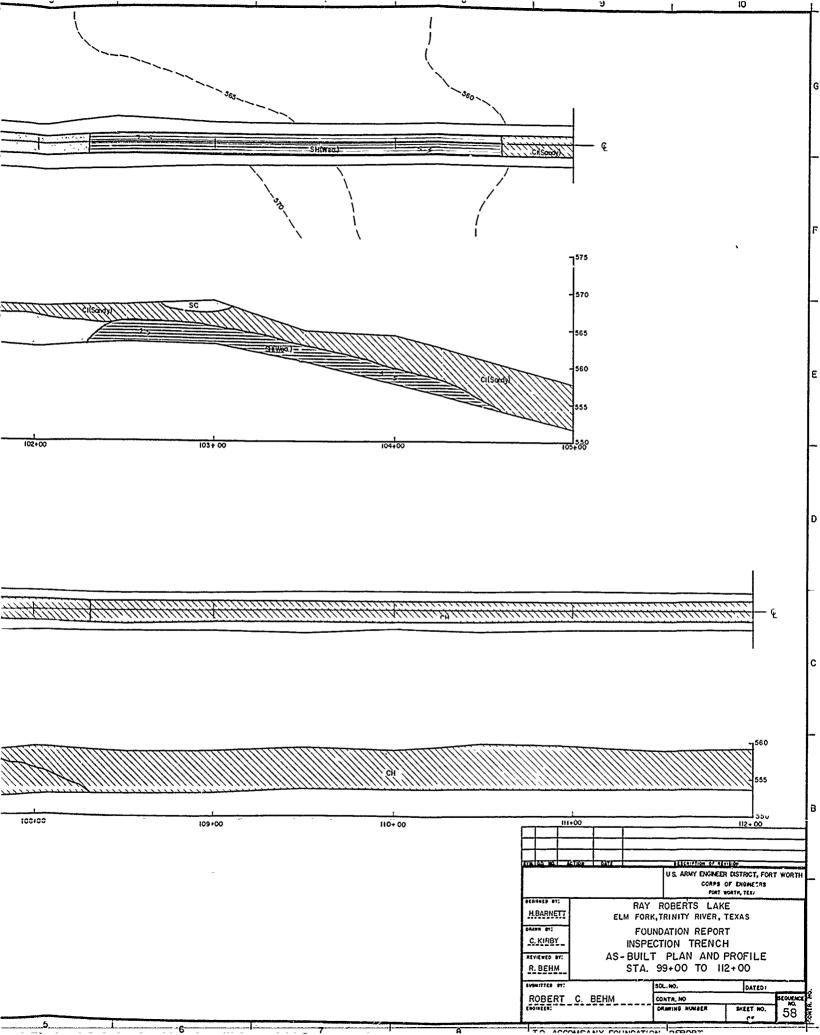


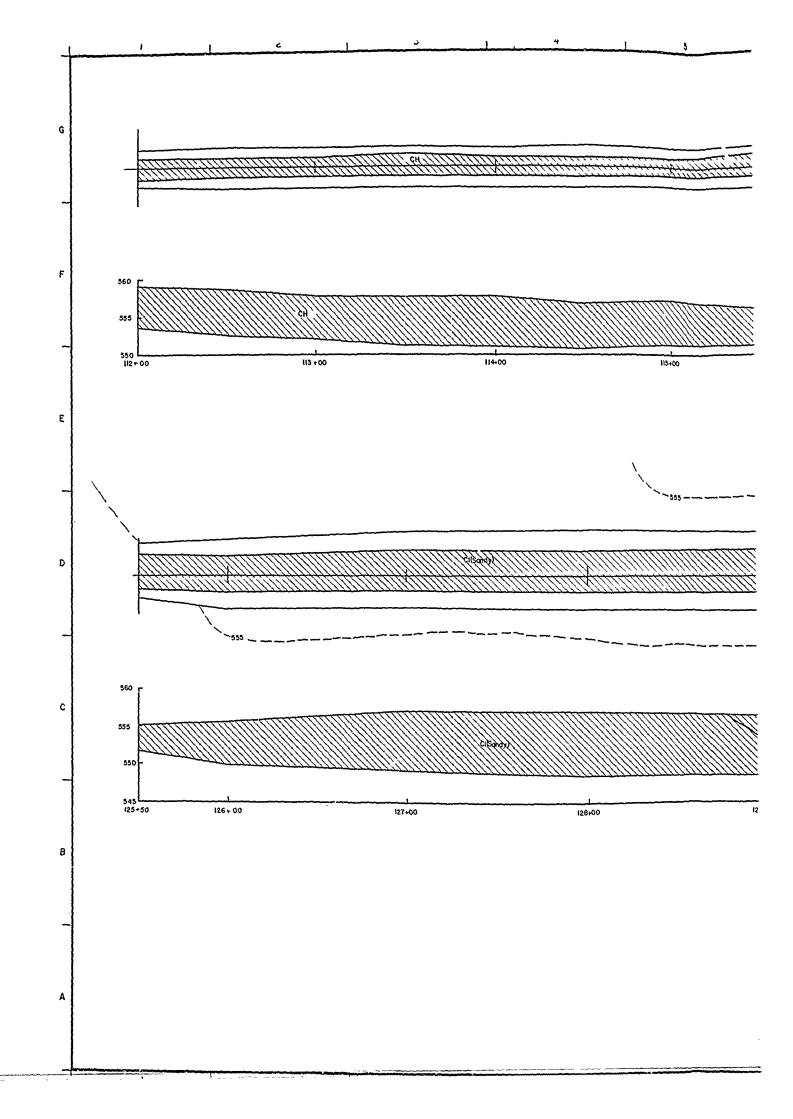


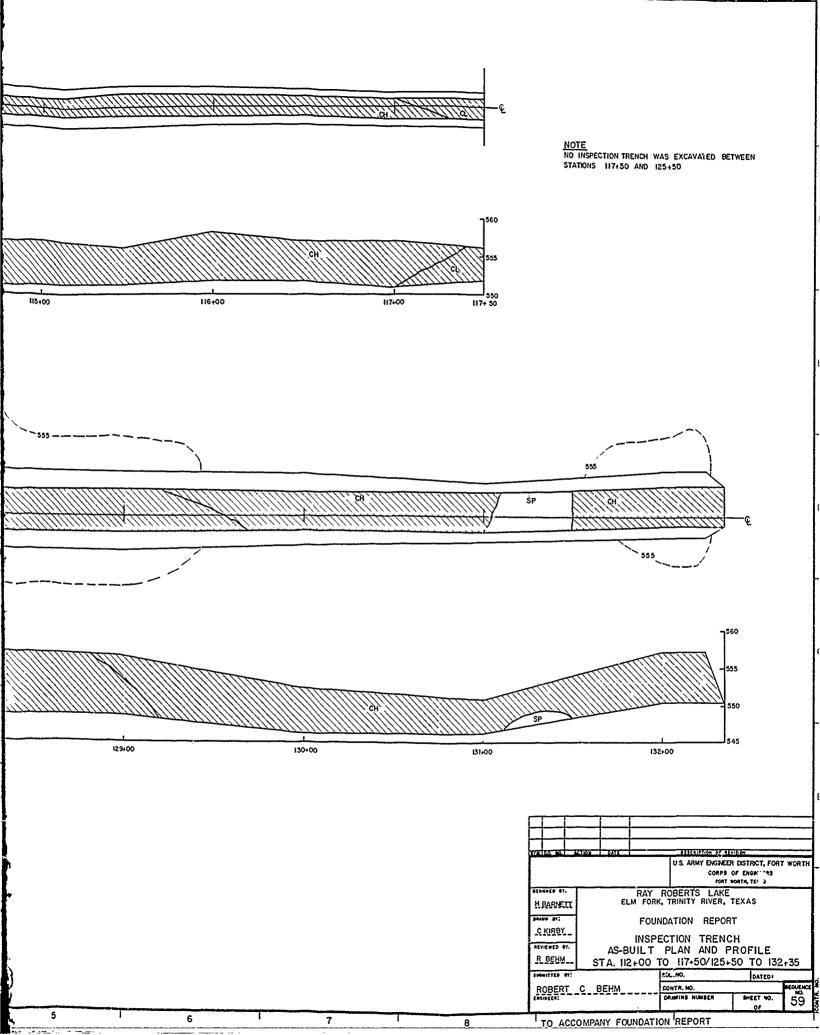


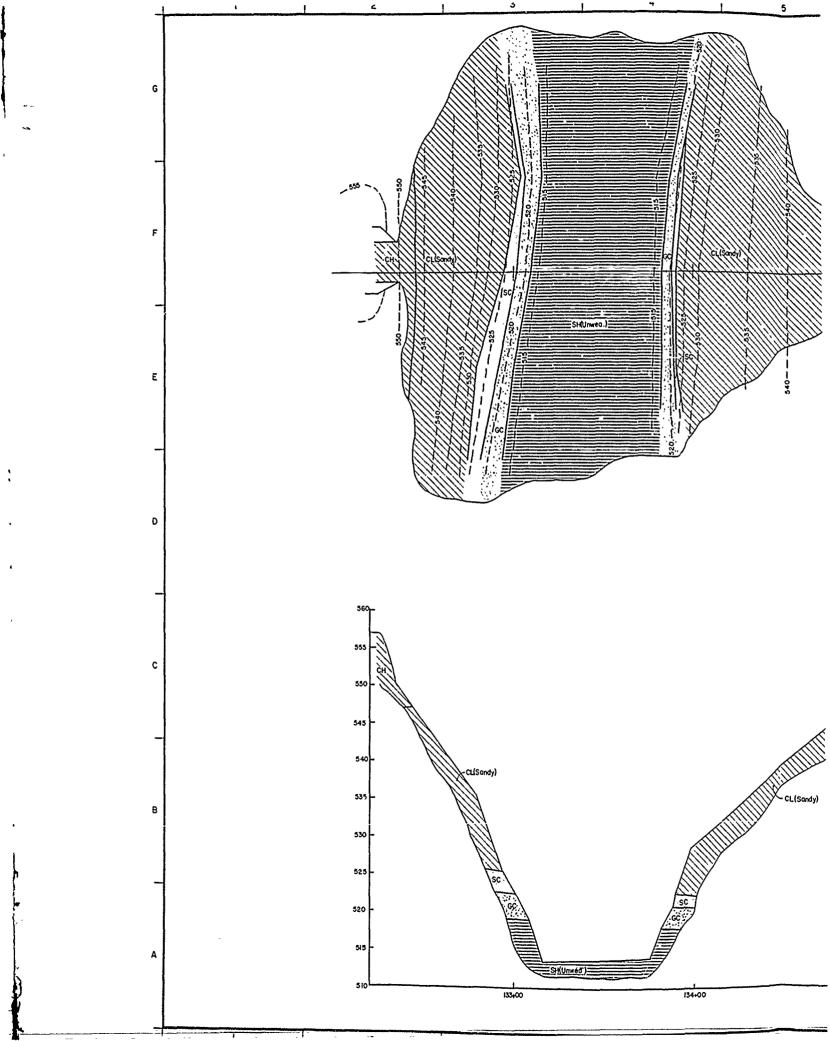


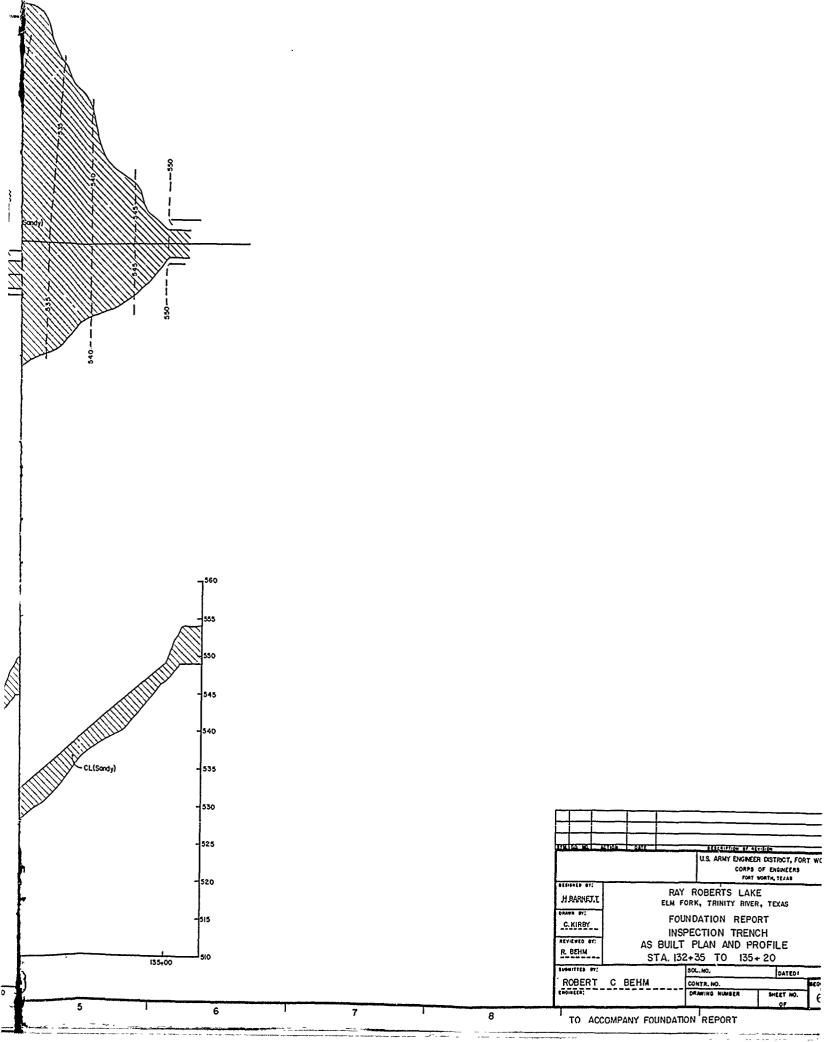


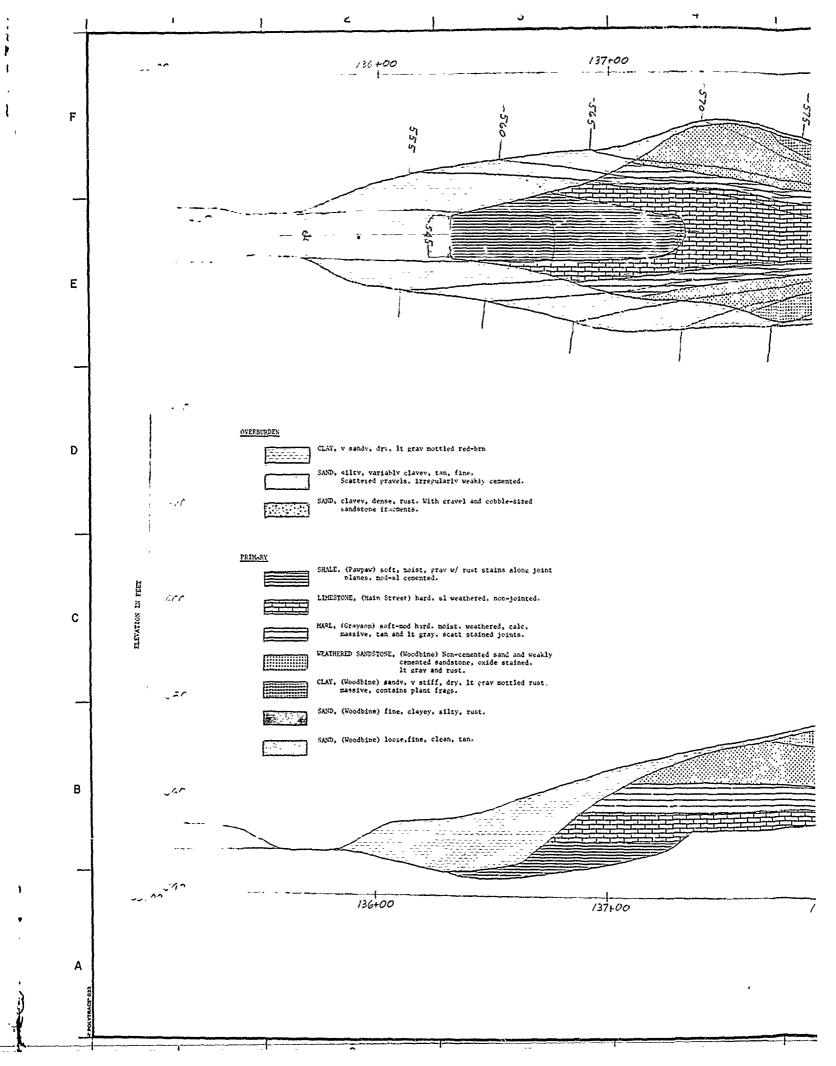


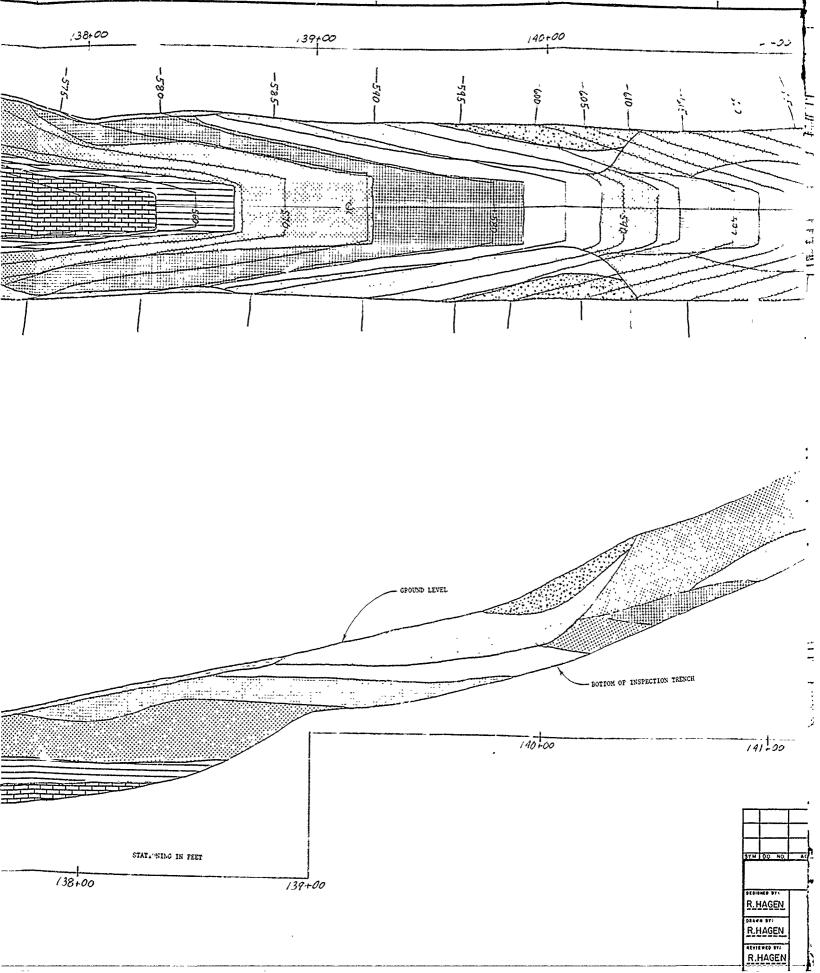


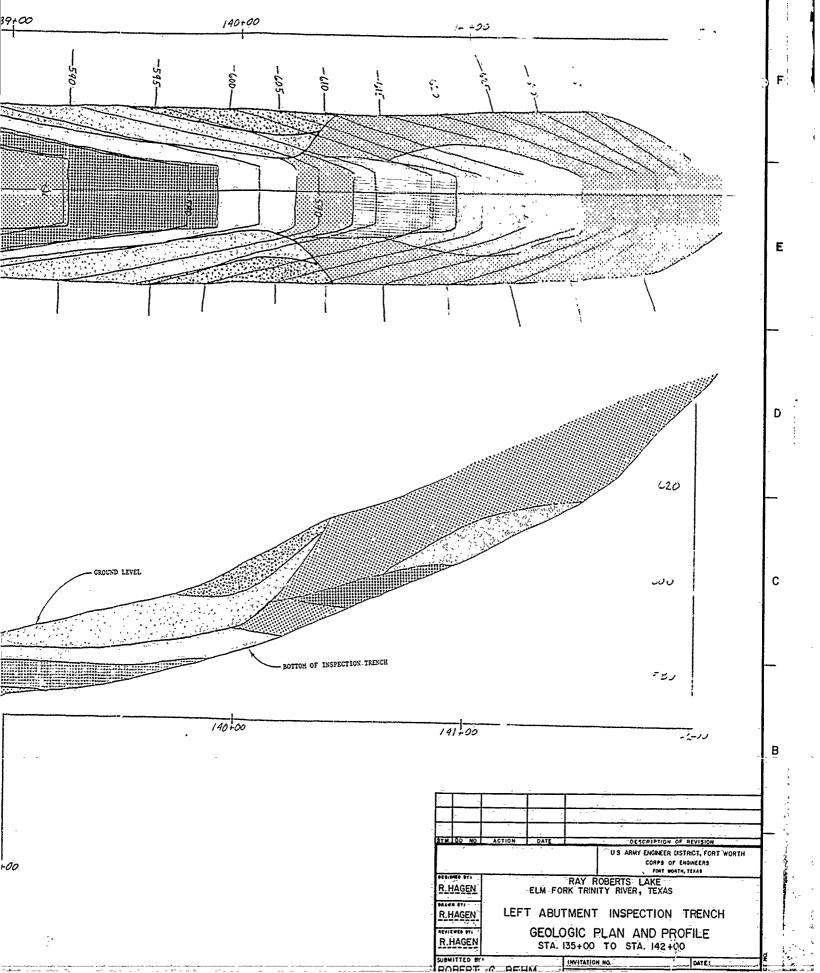


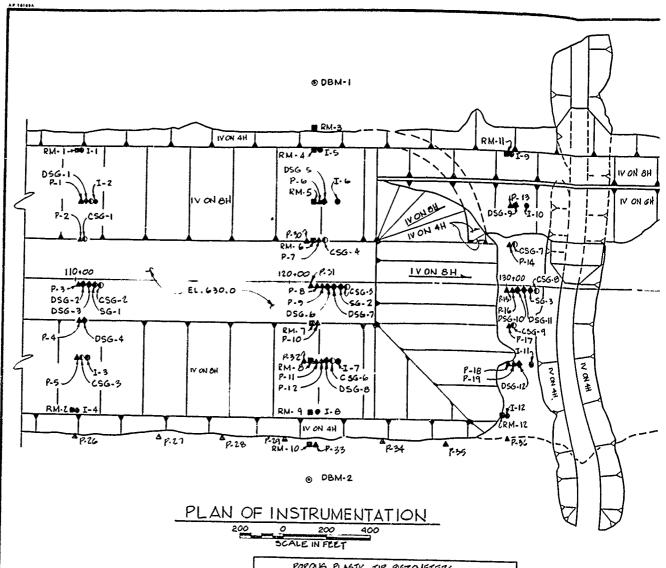












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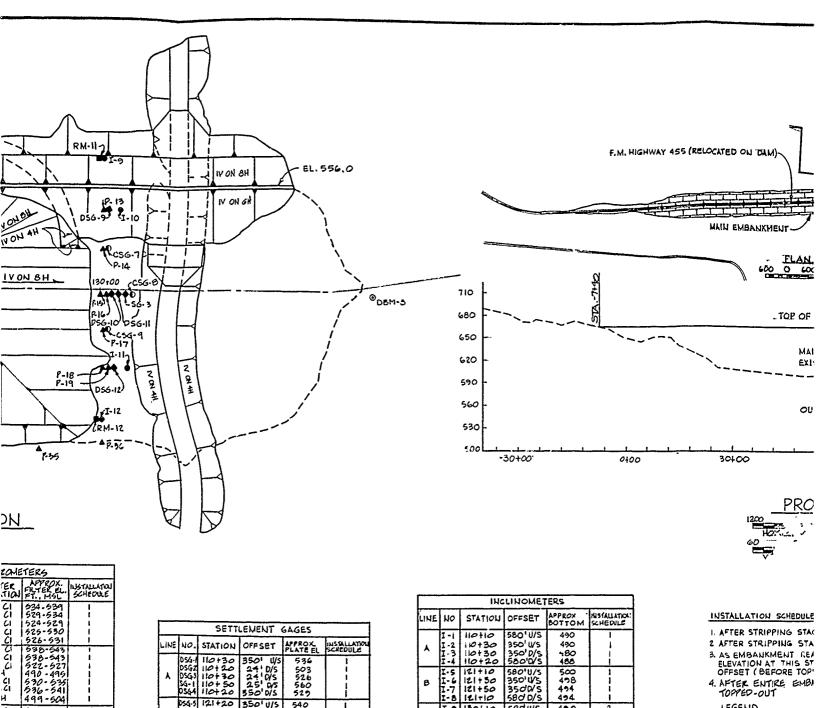
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В		121 + 10 121 + 11 121 + 01 121 + 10 121 + 10 121 + 10 121 + 10	350 U/5 180 U/5 24 0/5 24 0/5 180 0/5 350 0/5 350 V/5	MK CI MK CI MK CI	538-543 538-543 522-527 490-496 530-536 536-541 499-504	
6 '	P.15 P.16 P.174 P.16	129+99 130+10 130+01 130+01 129+99 130+10	351 U/9 112 W/9 24 0/9 24 0/9 116 0/9 349 0/9 349 0/9	MERCHANTANT TOOT TOOD	533 - 536 527 - 532 529 - 536 501 - 506 526 - 531 524 - 527 499 - 504	2222222
SEPAGE PIEZOMETE	P-21 P-22 P-23 P-25 P-25 P-25 P-25 P-25 P-25 P-25 P-25	73+25 85+07 110+05 114+00 114+99 119+99 121+40 121+00 121+09 121+09 121+30	297 000 297 000 325 000 325 000 325 000 326 000 326 000 345 000 345 000 345 000 345 000 345 000 345 000	SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR SUIGR	583 - 586 581 - 586 585 - 570 576 - 581 576 - 581 573 - 526 572 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525 510 - 525	344444444444444444

	<del></del>			
	<u> </u>		SETT	LEME
	LINE	NO.	STATION	OFF
	٨	DSG-1 DSG-2 DSG-3 SG-1 OSG-4	110+30 110+30 110+30	350 24 24 35 350
∆⁴	8	054-5 054-6 054-7 54-2 054-6	121+20 121+20 121+40 121+31 121+30	350 4450 350 350
	v	05G9 05G+0 05G-11 SG-3 05G-12	130+09 130+19 130+29 130+40 130+19	354440

	POR	ous pla	STICTIP	P
LINE	No.	STATION	OFFSET	l
REPAGE ACCOMETERS	P-31 P-35 P-40 P-41 P-41 P-41	130 + 07 137 + 62 137 + 59 137 + 58 139 + 06 139 + 04 140 + 53 141 + 41 141 + 39	120 U/S 104 U/S 36 1 0/S 62 1 0/S 62 1 0/S 107 0/S 326 0/S 92 0/S 95 0/S	, th

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		SETTLEMENT GAGES								
	LINE	NO.	STATION	OFFSET	APPROX.	INSTALLATION SCHEDULE				
	٨	2555 2555 2555 2555 2555 2555 2555 255	110120	350' Ws 24' D/s 24' C/s 25' C/s 350' O/s	536 503 526 560 529					
އ	8	5555 5555 5557 5557 5559		350 U/S 24 0/S 24 0/S 24 0/S	540 525 508 557 540					
	С	888 888 888 888 888 888 888	130 109	351'4/s 24'0/s 24'0/s 24'0/s 350'0/s	536 532 516 558 516	2 2 2 2 2 2				

2222222

4444444444444

1000 TOT

REGERERAL PRESENT

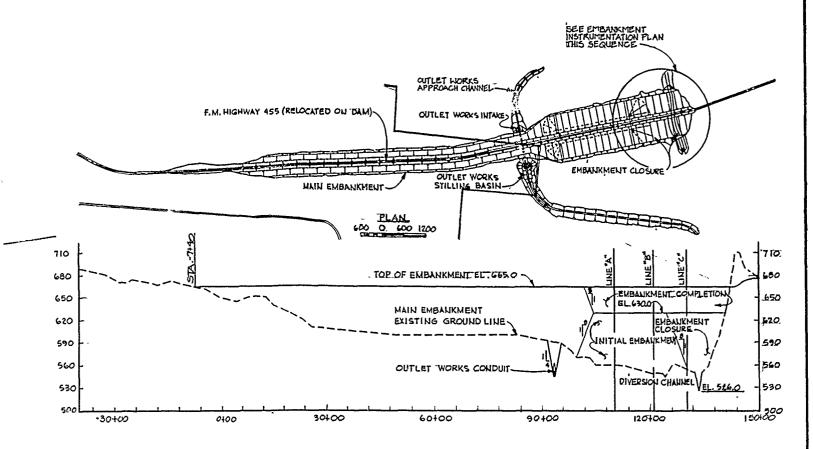
	POR	OUS PLA	6TIC 718	PIEZOMET	ERS (CONT	(·)
LINE	No.	STATION	OFFSET	FILTER LOCATION	APPROX.	SCHEDULE
PAGE RECOMETERS	P-37 P-38 P-40 P-41 P-42 P-43	130 + 07 131 + 62 137 + 59 137 + 58 139 + 06 139 + 04 140 + 53 141 + 41 141 + 39	3610/5	50 401 50 50 50 50		

INCLINOMETERS							
LINE	110	STATION	OFFSET	APPROX .	HISTALLATION SCHEDULE		
	I - I	110110	580'0/5	490	1		
٨	1-2	10+30	350'U/S	490	1 1		
	1-3	110+30	350'0/5	480	l i		
	I-4	110+20	580'0/5	488	1		
	1.5	121+10	580'0/5	5∞	1		
в	I-6	121+30	350'4/5	498	1 1		
	1-7	121+50	3500/S	494	1		
	1-8	121+10	580 D/S	494	1		
	I-9	130+10	580 WS	490	2		
	1-10	150+30	350 0/5	496	2.		
С,	I-11	130+40	350 0/5	494	2		
1	11-12	150110	580'0/5	494	1 2		

	COLL	APSIBLE	SETTLEME	nt gage	5
LINE	No.	STATION	OFFSET	APPROX.	SCHEDULE
	C\$6-1	110 +20	100'0/5	490	1
A	¢56-2	110+50	24'0/5	480	1 1
	C54-8	110 +40	350 0/5	480	1
	C54-4	121 +20	180' U/S	446	
В	444	121+60	24'0/5	486	, ,
	C56-6	171 +40	350'0/51	494	<u> </u>
c	CS47		180 0/5	496	2
		170+60	24' D/S	486	1 2
	KSG-9	130+20	1800/5	494	1 2

- ELEVATION AT THIS ST OFFSET ( BEFORE TOP' 4. AFTER ENTIRE EMBI TOPPED-OUT
- LEGEND
- PIEZOMETER SETTLEMENT GAGE
- COLLAPSIBLE SETTLE
- INCLINOMETER
- REFERENCE MARK BENCHMARK

deep benchmark							
une	NO.	STATION	OFFSET	BOTTO			
			8800/5				
6	201-2	121+00	380 0/5	490			
	224.3	143+00	50'0/5	65			



PROFILE							
1200	0	1200	24P0				
THE	KIZ. SCA	EIN FEE	T				
60	- 0	60	120				
~~~	KT. SCAL	E IN FEE	ī				

	INCLINOMETERS							
LINE	NO.	STATION	OFFSET	APPROX '	HIS (ALL ATION) SCHEDULE			
٨	I-I I-2 I-3 I-4	110+10 110+30 110+30	580'U/S 350'U/S 350'D/S 580'D/S	490 490 480 488	1			
В	I-5 I-6 I-7 I-8	121+10 121+30 121+50 121+10	580'U/S 350'U/S 350'D/S 580'D/S	500 428 424 424	-			
٥.	I-11	130+10 130+30 130+40 130+10	580 WS 350 U/S 350 D/S 580 D/S	490 496 494 494	2 2 2 2 2			

	COLLAPSIBLE SETTLEMENT GAGES						
		STATION	OFFSET	APPROX.	SCHEDURE I II STALLATION		
A	C54-2	110+20	180°11/5 24'U/S 350'0/5	490 480 480	1		
В	cso-s	121 +20 171 +60 121 +40	180° U/S 24°0/S 350'0/S		1		
c	C56-8	130+20 130+60 130+20	180 U/S 241 D/S 180 D/S	496 486 494	222		

## INSTALLATION SCHEDULE LEGEND

- I. AFTER STRIPPING STAGE II C. AFTER STRIPPING STAGE III C
- 3. AS EMBANKMENT REACHES FINISHED ELEVATION AT THIS STATION AND OFFSET ( BEFORE TOPSOIL).
- 4. AFTER ENTIRE EMBANKMENT 13 TOPPED-OUT

## LEGEND

- A PIEZOMETER
- SETTLEMENT GAGE
- COLLAPSIBLE SETTLEMENT GAGE
- S INCLINOMETER
- REFERENCE MARK
- O BENCHMARK

deep benchmark								
UNE	NO.	STATION	OFFSET	APPROX.	installation schedule			
B	2041	121+00	8800/5	500	1			
B	2342	121+00	380 0/5	490	1			
	7843	143100	50'0/5	650	1			

## NOTES:

- FOR SECTION THRU LINE A, SEE SEQ. NO. 44
- 2 FOR SECTION THRU LINE B, SEE SEQ. NO. 45 3. FOR SECTION THRU LINE C, SEE SEQ. NO. 46
- 4. ALL INSTRUMENT ELEVATIONS ARE APPROXIMATE, ACTUAL
- ELEVATIONS WILL BE DETERMINED AT TIME OF INSTALLATION.
- ALL INSTRUMENTATION WILL HAVE PROTECTIVE FENCE, EXCEPT THOSE ALONG THE DOWNSTREAM CREST, FOR PROTECTIVE FENCE DETAILS, SEE SEQ. 41

## RECORD DRAWING-WORK AS-BUILT

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A C0182	60#P00016	30H484	REVISED TO REFL	BCT AS.	SUILT GIM	955			
TYLL DO HO.		DATE		RIPTION OF					
	U S. ARM	001	EER DISTRICT, THE OF ENGINEERS FORT WORTH, TEXAS		ORTH				
A BRANCH	RAY ROBERTS LAKE  ELM FORK, TRINITY RIVER, TEXAS								
J FIESELER		ΡΙΔΝ	EMBANKMENT N OF INSTRUMENTATION						
A.BRANCH	TEAR OF HOTHOMENTATION								
HI KARBS			INVITATION NO DACHUS	-82-5-00	25 DATE MAI	3.1982			
	22		CONTRACT NO DACH 63	0013	SCOUTHCE				
ENGINEZA			DRAWING HUMBER		PERT NO.	-CO-			

